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THE MADRAS

QUARTERLY JOURNAL

OF

MEDICAL SCIENCE.

EDITED BY

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THE

MADRAS QUARTERLY JOURNAL

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THE MADRAS

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PART I.

ORIGINAL ESSAYS.

ART. I.—*Notes on some of the Indigenous Medical Plants of India.* By EDWARD JOHN WARING, Esq., Physician to His Highness the Rajah of Travancore.

(Continued from No. VI., p. 353.)

ANTIDOTES TO SNAKE-BITES.

THE Natural Order Asclepiadaceæ furnishes us with several reputed indigenous antidotes to snake-bites, which we will now proceed to note.

Dœmia extensa.
Utrun (Hind.)
Vela paruti (Tam.)

The first of these is the *Dœmia extensa* of R. Brown, (Mem. Wern. Soc. i, p. 50,) the *Cynanchum extensum* of Jacquin, (Icones, tab. 54) the *Asclepias echinata* of Roxburgh, (Flor. Ind. ii, p. 44,) a climbing milky shrub, common in hedges in many parts of India, and may be distinguished from all the other Asclepiads of this country, by its follicles being covered with soft, fleshy inoffensive prickles, "hedge-hogged," whence Roxburgh drew his specific name *echinata* (Wight.) Its native names are *Utrun*, (Hind.) *Chagul-bantee*, (Beng.) *Vela paruti*, *Uta-munnie*, (Tam.) *Jutupakoo*, *Jutuga*, (Tel.) *Jootee Bayroo*

(Canar.) Wight.[1] The smell of the flowers is very offensive. Of its virtues little appears to have been known correctly. Ainslie[2] speaks of it as being prescribed in asthma as an anthelmintic, &c.; but it attracted little attention till 1858, when there appeared in a Madras local paper, (the *Spectator*, March 19th,) an account of a case of snake-bite inflicted by a cobra, which was cured by swallowing the expressed juice of the leaves of a wild creeper, called by some *Valy purthy*, and by others *Koorunjy keeray*. Had the former of these names only been employed, there would be little doubt that it was the *Dœmia extensa* which was alluded to, but in a subsequent issue (March 26th) Lieut. Hawkes pointed out that the names are not synonyms, and that the latter name is used by the natives to designate *Tylophora asthmatica*, another Asclepiad not uncommon in Southern India. Which plant is the true one is undecided, but in the case alluded to, the *Valy purthy* certainly appears to have acted with energy; the patient, a woman, was apparently moribund, the medicine caused violent vomiting, and the woman recovered. It has been considered by some that the *Velli navi*, which forms one of the active ingredients in the Tanjore pills, (infra,) is this plant. Its properties certainly seem to deserve further investigation.

Gymnea Sylvestris.
Chota-doodhee luta (Beng.)
Siru-kurinja (Tam.)

A second plant of this family, nearly allied to the foregoing, is the *Gymnea Sylvestris* of R. Brown, (Prod. p. 461) the *Periploca Sylvestris* of Willdenow, (Sp. Pl. i, p. 1253,) the *Asclepias geminata* of Roxburgh. (Flor. Ind. ii, p. 45.) This also is a climbing plant, which, though less abundant in Southern India than the preceding, is not uncommon. It is distinguished by its dense clusters of small yellow flowers. Its Oriental names are *Chota-doodhee-luta*, (Beng.) *Siru-kurinja*, (Tam.) *Ellé-binunge* (Cing.) Its bitterish roots, according to Ainslie, are supposed by native practitioners to possess virtues in cases of snake-bites, being used for this purpose both internally and externally. Bennett mentions that by the Cingalese it is considered as having the same properties as Euphorbia Ipecacuanha.

A very curious circumstance connected with this plant was first noticed by Captain Edgeworth; namely, that if

(1) Madras Journ. of Lit. and Science.
(2) Mat. Med. Ind. ii, p. 452.

chewed, it destroys the power of the tongue to appreciate the taste of sugar and all saccharine substances. This peculiar property was proved by Captain Edgeworth in his own person; powdered sugar, taken immediately after masticating some of the leaves, appeared like so much sand in his mouth, and this effect lasted nearly twenty-four hours, when he recovered the power of tasting sugar. (Pharm. Journ. vol. vii, p. 551.)

Calotropis gigantea.
Ak, Mudar (Hind.)
Yerkum (Tam.)

The third plant of this Natural Order, the Calotropis gigantea, *Ak, Mudar*, (Hind.) and *Yerkum*, (Tam.) is considered by Captain Munro as deserving attention as an antidote in snake-bites; the only notice I can find of its use in this way is in Rheede(1), who mentions that the root with water is used as a lotion for parts bitten by the cobra. The juice forms one of the ingredients in the Tanjore pills. It has been fully considered as a Tonic, Emetic and Diaphoretic.

Tylophora asthmatica.
Unta-mool (Hind.)
Kurinja (Tam.)

The *Tylophora asthmatica* of Wight and Arnott, another plant of this order, recently considered amongst the Indigenous Emetics, requires a brief notice in this place; as, according to Dr. Sherwood, quoted by Ainslie(2), the roots are used externally against the bites of scorpions and centipedes, being previously pounded and formed into a paste with a little water. The coincidence of powdered ipecacuanha being employed in similar cases and in a similar manner, is not a little remarkable. Its eastern names are *Unta-mool*, (Hind. and Beng.) *Varri-pala*, or *Yerri-pala*, (Tel.) *Kurinja*, (Tam.) *Kuring yan*, (Cing.)

Wrightia pubescens.
Velam-pala (Mal.)

The fifth plant of this order is the *Wrightia pubescens* of Römer and Schultes, (Wight's Icones ii, tab. 443.) The *Nerium tomentosum* of Roxburgh, (Flor. Ind. ii, p. 6) the *Nelem-pala* of Rheede, (Hort. Mal. ix, p. 5, tab. 3, 4.) According to this last named authority, the bark of the root, powdered and formed into a bolus of the size of an areca nut, taken internally, proves a certain and speedy remedy in cases of snake-bites.

(1) Rheede Hort. Mal. ii, p. 55.
(2) Mat. Ind. vol. ii, p. 83.

Two Asclepiads are noticed by Rheede; 1, *Nansjira-patsja* (Vol. ix, p. 21,) and 2, *Watta-kaka codi*, (Vol. ix, p. 25,) as possessing antidotal powers in snake-bites; the former is *Hoya-pendula*, and the latter *Ceropegia candelabrum*; nothing further is known of their properties.

Another Natural Order which contains several plants used in the treatment of snake-bites is the Acanthaceæ; and this is the more remarkable, as the order generally is of a mild, inocuous character. We will enumerate the principal.

1. *Dilivaria ilicifolia*, Juss. (Wight's Icones ii, tab. 459.)

Dilivaria ilicifolia.
Hurkut (Hind.)
Kolee-molee-cheddie (Tam.)

The *Acanthus ilicifolius* of Linnæus, (Sp. Pl. 892) the *Aquifolium Indicum* of Rumphius, (Herb. Amb. vi, p. 136, tab. 74,) *the Paina schulli* of Rheede, (Hort. Mal. ii, p. 93, tab. 48.) This plant, which is abundant on the banks of water courses and swamps in many parts of India, Burmah, the Moluccas, &c., attracts the notice of the European traveller, by the strong similarity of its leaves to that of the *Holly*. Its Oriental names are *Hari-kussa*, (Sans.) *Hurkut*, (Hind.) *Kakooch-kanta*, (Beng.) *Alisa*, (Tel.) *Kolee-molee-cheddie*, (Tam.) *Paina schulli*, (Mal.) *Ka-ya*, (Burm.) *Jerujo, Dsheroodshoo.* (Javan.) The people of Malabar, according to Rheede,(1) employ the whole plant, bruised and mixed with water, as a local application to the bites of the cobra; and Mason(2) states that the Burmese regard the roots as a cure for the bites of venemous snakes. Rumphius(3) states that the people of the Moluccas employ the bruised roots as a local application to wounds inflicted by poisoned arrows.

The Barleria ciliata of Roxburgh, (Flor. Ind. iii, p. 38) another Acanthaceous plant, inhabits Bengal, the Himalayas, and the Kumaon mountains, where it is known by the names of *Surp-jeeba*, and *Guroor-bootee*. According to Madden(4), the seeds are employed by the people of Kumaon in the treatment of snake-bites.

Barleria ciliata.
Surp-jeeba (Hind.)

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(1) Op. cit. p. 94.
(2) Natural Prod. of Burmah, p. 100.
(3) Op. cit. p. 164.
(4) Journ. Asiat. Soc. of Bengal, May 1848, p. 435.

A third plant of this order is the *Rhinacanthus communis* of Nees von Esenbeck, (Wight's Icones ii, tab. 464) the *Justicia nasuta* of Linnæus, (Sp. Pl. 23) the *Justicia scandens* of Vahl, and the *Pul-colli* of Rheede (Hort. Mal. ix, p. 135, tab. 69). This plant, common in many parts of India and Ceylon, is known by the names of *Yoothika-purnee*, (Sans.) *Jooin-pana*, (Beng.) *Naga-malle*, (Tel. and Tam.) *Pul colli*, (Mal.) *Anitia*, (Cing.) *Kalawara*, *Damon*, *Sarong*, (Javan.) Roxburgh[1] states, that though the chief use of the plant is in skin diseases, yet that the native physicians employ the roots in the treatment of the bites of venemous snakes; hence, he adds, the Tamil and Telugu names *Naga-mulli*, or *Jasmine of the Cobra; Naga* being the prefix to the name of most of their antidotes or medicines supposed to destroy the effect of poison, and occurring very often in their writings. The Rev. J. Long[2] speaks also of its being regarded in Bengal as a snake antidote.

Rhinacanthus communis.
Jooin-pana. (Beng.)
Naga-malle. (Tam.)

The fourth and last plant of this order which we shall notice, is the *Peristrophe bycalyculta* of Nees von Esenbeck, the *Justicia bycalyculta* of Vahl, the *Justicia Malabaria* of Aiton, and the *Cara-carinam* of Rheede. (Hort. Mal. ix, p. 110, tab. 56.) A common plant in most parts of India, known by the native names of *Nasa-bhaga*, (Beng.) *Chebiera*, (Tel.) *Cara-caniram*, (Mal.) According to Rheede, the whole plant, macerated in rice water, and used both externally and internally, proves an antidote in the bite of the cobra.

Peristrophe bycalyculta.
Nasa-bhaga (Beng.)

The next Natural Order at which we shall glance is Menispermaceæ, which contains many plants possessed of well known bitter antiseptic properties, and which furnishes in other parts of the world some antidotes of considerable repute; as, for example, *Cissampelos ebracteata*,[3] *C. glabevrima*, and *C. ovalifolia*,[4] *C. cœpeba*,[5] *Cocenlus filipendula*,[6] all natives of South America. India, however,

(1) Flor. Indica i, p. 122.
(2) Journ. Agri. Hort. Soc. of India, 1858, vol. x, p. 25.
(3) Plant Usuelles des Brazil, tab. 34.
(4) Mat. Med. Bras. p. 42.
(5) Duchesne Repert des Plants Utiles, p. 180.
(6) Martins, op. cit. p. 42.

only furnishes two plants of this order which enjoy any repute, and even these are very imperfectly known.

Cissampelos convolvulacea. *Kupooree* (Hind.)

The first of these is the *Cissampelos convolvulacea* of Wight and Arnott, (Prod. i, p. 14,) a plant said to be widely diffused throughout India. It is known by the names of *Kupooree* and *Purhee*, (Hind.) *Pata* (Tel.) It was first brought to notice by Colonel Cox, who, in June 1844, forwarded to the Agri-Horticultural Society of India, a specimen of a climbing plant found in the Dooab, near Allahabad, which was said to have proved, on repeated trials, a complete specific for the bites of the most venemous snakes, the Cobra de Capello included. A small piece of the root, about an inch long, is bruised down with about twenty black peppercorns, and given in a little water to the patient. It causes profuse foaming at the mouth, and the dose is to be repeated at short intervals, two or three times. The patient is directed to be kept in active bodily motion, till all symptoms of lethargy are removed. The specimen sent, as well as the information was obtained from Mr. A. Matthews, at Allahabad, who reports that he has often used it at his factories with complete success. The specimens forwarded were submitted to Dr. Griffith, who pronounced them to be *Cissampelos convolvulacea* of Wight and Arnott. It may be worthy of further trials.

Cocculus acuminatus. *Baga mushadee* (Hind.)

Of the second species we know even less, it is the *Cocculus acuminatus* of DeCandolle, (Prod. i, p. 99) the *Menispermum acuminatum* of Lamarck, the *M. polycarpum* of Roxburgh, the *Tinospora coradifolia* of Miers, and the *Valli caniram* of Rheede. (Hort. Mal. vii, p. 5, tab. 3.) It is a climbing shrub, extending from Assam and Oude through Bengal, to Malabar and other parts of India. It is variously named *Baga-mushadee*, (Hind.) *Bagha-luta*, *Tiliya-kura*, (Beng.) *Tiga mushadi*, (Tel.) *Vally-caniram*, (Mal.) All we know of its antidotal uses is what is mentioned by Roxburgh[1]; viz., that the stems rubbed between stones with water are used by the natives as an antidote to the bites of snakes. This would be hardly worth mentioning, were it not for the natural family to which it belongs. Rheede speaks of the use of this plant in tooth-ache, head-ache, locally to ulcers, &c., but does not allude to its use in snake-bites.

(1) Flor. Ind. iii, p. 316.

Polygala crotalariodes.

The Genus Polygala which furnishes *P. senega*, *P. sanguinea*, and other snake antidotes of considerable repute in the Western Hemisphere, has very few representatives in the East, but of these one, *Polygala crotalariodes* of Hamilton, (D. C. Prod. i, p. 76,) according to Royle,(1) is employed on the Hill tracts of India, where it is very common, as a cure in the bites of snakes. A good figure of it is given in Wallich's Plant. Asiat. Rariores ii, tab. 185.

Departing now from the consideration of families or orders, we will proceed to enumerate a few individual plants which have been resorted to in snakes-bites.

Eupatorium ayapana.
Aya-pana, (Hind.)

Eupatorium ayapana, Vent; D. C. Prod. v, p. 169, a plant of the Nat. Ord. Compositæ, originally a native of South America, on the banks of the Amazon, was introduced into the Mauritius by Baudin, in 1797, and has now become domesticated in many parts of India, Java, and Ceylon, and is generally known with very slight variations, by its Brazilian name of *Aya-pana*. The whole plant is aromatic, with a slight bitter sub-astringent taste, and formerly enjoyed a high reputation as an Alexipharmic, Emmenagogue, Diuretic, Diaphoretic, Lithontriptic, and Anti-scorbutic. Although most of its boasted virtues are now regarded as fabulous, or at any rate, as greatly exaggerated, it appears to be deserving of attention as a remedy in the bites of snakes and other venemous reptiles. Martins(2) states that in Brazil, the freshly expressed juice, or an infusion of the herb, taken internally, and fomentations of the herb applied locally, is regarded as an excellent remedy in this class of cases. In Ceylon, where it is known by the name of *Aya-pana*, it is also regarded as a remedy for snake-bites. Bennett(3) relates, on the statement of a native doctor, a case of a person bitten by a cobra, who was cured by this plant. He gave internally an infusion of the aromatic leaves, suspending the wounded leg over a pan of boiling water in which a quantity of Aya-pana leaves were infused, keeping it in the steam till every bad symptom had disappeared,

(1) Illust. i, p. 76.
(2) Mat. Med. Bras, p. 44.
(3) Account of Ceylon, p. 119.

when he perfected the cure by giving the patient half a cocoanut shell full of wine.

Two cases illustrative of its operation in somewhat analogous cases are related by Sieber,(1) which occurred to himself in his wanderings in South America. In the first instance he received from the hairs of a large brown Brazilian caterpillar, three punctures in the middle finger of the right hand; the finger became red, swollen, and exceedingly painful. In a quarter of an hour the redness and swelling extended over the arm, and as far as the elbow, so that in half an hour he could scarcely move. Having sent for the Aya-pana he applied the expressed juice to his arm with some of the bruised plant; in two or three minutes the pain decreased; in half an hour he was able to bend his arm, and the next day he recovered the perfect use of it. The pricks in the finger, however, retained a dull pain for two days, but at the end of that time it went off.

The second trial was more disagreeable. A small scolopendra stung or bit him, whilst asleep in the night-time, in the forehead above the right eye. As he could not in the night time procure the plant, the poison before next morning had made considerable progress; after applying the Aya-pana, the pain and inflammation went off, but suppuration ensued. M. Venenat(2) likewise speaks favourably of its use. Amongst other cases he relates the case of a man stung severely by a scorpion; consequent on it there was violent pain and great inflammation; Aya-pana locally applied caused immediate subsidence of these symptoms, and the hand soon returned to its natural state. According to the analysis of Waflart,(3) the plant contains a fatty principle soluble in ether, an essential oil, a bitter principle, and traces of sugar.

Leucas aspera.

Halkusa.
Chota halkusa. } (Hind.)

Leucas aspera of Sprengel, (D. C. Prod. xii, p. 532,) the *Phlomis aspera* of Willdenow, the *Phlomis esculenta* of Roxburgh, (Flor. Ind. ii, p. 10) the *Tumba* of Rheede, (Hort. Mal. vol. x, p. 181, tab. 91) is an herbaceous plant, of the Natural Order Labiatæ, inhabiting Bengal, the Himalayas, and the banks of the Jumna, and is known by the names of *Halkusa* and *Chota halkusa.*

(1) Tilloch's Phil. Mag. xxi, p. 92.
(2) Ibid. xiii, p. 376.
(3) Journ. de Pharm. Jan. 1829.

(Hind.) In 1826 it was brought to the notice of the Bengal Medical Board, by Mr. Olsen,(1) as a valuable remedy in snake-bites, Dr. Butler of Goruckpore,(2) regarded as a high authority on the subject, furnishes us with the following remarks on the use of this plant.

"Mr. Olsen's knowledge of this plant," he remarks, "was acquired from a low caste native in his service, who was well known to the neighbourhood by his possession of a secret remedy for snake-bites, and for the number of persons whom he had cured by its means. His account of the manner in which he had discovered the virtues of the plant was, that he had frequently followed the Mongoos when it retreated after it was bitten in encountering a snake, and that he always found that it had recourse to this plant, to prevent the fatal effects of the poison. Be this as it may, there can be little doubt of the powers of the medicine. Mr. Olsen having assured me that he had seen from twenty to thirty persons recovered by it from the effects of poison by snake. The native's invariable mode of exhibiting it was to bruise in his hand several leaves of the plant, till they yielded about a tea-spoonful of juice, and to make the patient draw this up into his nose. From its effects on that organ, it would appear to possess a considerable degree of pungency, which the leaves lose by drying, and to which, independently of any occult power, its good effects are perhaps to be ascribed.

"On the virtues of this plant, I may remark, that, although from the account of its discoverer, it would appear that it had not been used in bad cases, that is, only in cases where the patient retained his senses, and the power of inhaling through the nose; it is as yet uncertain, whether thrown into the nose by a syringe, or the patient being compelled to swallow it, (should experiments warrant the safety of its internal use) it may not eventually be found equally efficacious with the powerfully stimulating treatment which I have endeavoured to recommend. Still, the same objections will apply to it and to ammonia; neither is always at hand; and even should the virtues of the juice be found to remain in the tried and powdered leaves, it is probable that both will be found equally perishable."

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(1) Trans. Med. Phys. Soc. of Calcutta ii, p. 403.

(2) Ibid. p. 404.

Dr. Wallich,(1) to whom specimens of this plant were forwarded, states that the natives of Bengal use the tops and other tender parts as a pot herb, and from this circumstance, as well as from its very slight aromatic scent and almost insipid taste, he is led to doubt the alexipharmic virtues ascribed to it by Mr. Olsen.

Trichodesmia Indica.
Chota kulpee (Beng.)

Trichodesmia Indica of R. Brown, (Prod. p. 496,) the *Borago Indica* of Linnæus, (Roxb. Flor. Ind. ii, p. 8,) a small plant of the Natural Order Borragineæ, indigenous in Bengal, where it is called *Chota kulpee*. It has obtained some repute as a remedy in snake-bites. Dr. Spry, in the 1st volume of "Modern India," details a remarkable case as related by Dr. Maxwell of the cure of a bite of a cobra effected by its use. A trooper of the 3rd Cavalry was bitten by a cobra, three feet long, which Dr. Maxwell himself saw. To quote Dr. Spry the poison immediately took on the system, and in a few minutes he became lethargic; foam appeared at the mouth, the animal powers grew prostrate, the lips and skin were livid, and at the time Dr. Maxwell arrived, the fate of the poor fellow appeared irrevocable. This plant being in high estimation in the Regiment, was procured at the first moment of the injury, and was immediately administered. It produced no sensible effect, but to the astonishment of every one the man rallied and eventually recovered. No other evidence, that I am aware of, exists as to the value of this plant in snake-bites; and, as pointed out in the commencement of this article, reliance deduced from any isolated cases of cure, under any remedy, are open to grave objection.

Achyranthes aspera.
Chitchera (Hind.)
Nayuruvi (Tam.)

Achyranthes aspera of Linnæus, (Roxb. Flor. Ind. ii, p. 63,) the *Cadelari* of Rheede, (Hort. Mal. x, p. 155, tab. 78,) the *Chitchera* of the Taleef Shereef, (p. 66, No. 351.) It is a low growing herbaceous plant, Nat. Ord. Amarantaceæ, common during the rains in most parts of India, Ceylon, Burmah, &c. Its Eastern names are *Apamarga*, (Sans.) *Chitchera, Chichiva, Agareh,* (Hind.) *Upang, Hoorhooriya,* (Beng.) *Uttareni,* (Tel.) *Nayuruvi,* (Tam.) *Cadelari,* (Mal.) *Karal-habæo,* (Cing.) *Daun mattopannas.* (Malay.) The flowering spike, as well as other parts of the plant, are com-

(1) Trans. Med. Phys. Soc. of Calcutta ii, p. 405.

monly regarded by the natives as a safeguard against the bite of the scorpion, and as an efficacious means of cure for the bites of these and other venemous insects and reptiles. Madden[1] mentions that the Oude Rajpoots consider that it acts as a safeguard against scorpions, which it is believed to paralyse, and some years since Mr. Turner[2], Civil Surgeon at Midnapore, called attention to this plant as a remedy in snake-bites. Royle[3] also mentions it in this character, and adds that in Behar, the flowering spike is regarded as a prevention of hydrophobia. Its use in this last disease is likewise mentioned by Dr. Irvine[4], who places the dose of the dried spike, at 3ss. to 3i. in infusion.*

Abelmoschus moschatus.
Kala-kastooree (Hind.)
Vettlei-kustoorei (Tam.)

Abelmoschus moschatus of Wight et Arnott, (Prod. i, p. 53,) the *Hibiscus abelmoschus* of Linnæus, (Sp. Pl. 980) the *Granum moschatum* of Rumphius, (Herb. Amb. p. 38, tab. 15,) the *Cattu gasturi* of Rheede, (Hort. Mal. ii, p. 71, tab. 38,) the common *Mush Mallow*, a Malvaceous shrub, inhabiting the East and West Indies, and other tropical countries. Its Oriental names are *Kala-kastooree*, (Hind. and Beng.) *Castorei*, (Malay.) *Vettlei-kustoorei*, (Tam.) *Ganda-poeva*, (Javan.) *Bala-wa*, (Burm.) *Kapurkanœpa*, (Cing.) According to Humboldt,[5] the people of new Andulasia employ the seeds, which they name *Anaoucho*, as a remedy in snake-bites; and Dr. W. Hamilton[6] relates an instance of a dog bitten by a snake, which was apparently rescued from the jaws of death by the use of the bruised seeds, both internally and externally. Considering the general character of the family to which this plant belongs, and the doubtful nature of the evidence afforded by Dr. Hamilton's case, I am not inclined to place any reliance on its alleged antidotal powers; no other writers speak of its virtues in this way.

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(1) Journ. Asiat. Soc. Beng. Mag. 1848, p. 310.

(2) Journ. Agri. Hort. Soc. Calcutta, vol. vi, p. 3, quoted by Munro.

(3) Illust. i, p. 321.

(4) Mat. Med. of Patna, p. 120.

* I take this opportunity of recording with thanks an interesting communication from Mr. Cornish, Secretary to the Principal Inspector General, Madras, regarding the diuretic properties of this plant, of which, after repeated trials, he reports very favourably.

(5) Nov. Gen. et. Sp. Plant, Amer. v. p. 291.

(6) Trans. Med. Bot. Soc. of London 1831, p. 71.

Capsicum frutescens of Linnæus, the *Common Chillie or Red Pepper plant*, which is too well known to need description, is stated by a writer in the *Indian Field*, (January 21st 1860,) to exercise a specific influence in snake-bites. The person bitten is directed immediately to chew the leaves and swallow the juice, but in case he is incapable of chewing, or is insensible, an incision should be made in a part of the head, and the juice of the leaves squeezed into the wound. The efficacy of the remedy is spoken of with confidence, and may merit a further trial.

Capsicum frutescens.
Lunca-mirch (Hind.)
Mulakay (Tam.)

Typhonium orixense, Schott, *Arum orixense*, Roxburgh, (Flor. Ind. iii, p. 503) A common plant, Nat. Order Araceæ, in many parts of India. Its Oriental names are *Ghekool*, (Hind.) *Ghet-kuchoo*, (Beng.) *Surei-kund*, (Tel.) According to Roxburgh, the natives apply the roots, which in the fresh state are extremely acrid, externally to the bites of venemous snakes, at the same time giving internally a piece about the size of a bean. "It certainly is," he adds, "a most powerful stimulant in proper hands."

Typhonium orixense.
Ghekool. (Hind.)

Antidesma alexiteria of Linnæus, (Sp. Pl. 1455) the *Stilago bunias* of Roxburgh, (Flor. Ind. iii, p. 758,) the *Bunias sativus* of Rumphius, (Herb. Amb. iii, tab. 132,) *Noeli-tali*, Rheede, (Hort. Mal. iv, p. 115, tab. 56.) A tree of the Nat. Order Stilaginaceæ, inhabiting Coromandel, Malabar, and other parts of India; also Ceylon. Its Oriental names are *Amtee*, (Hind.) *Nolei-tali*, (Tam.) *Nuli-tali*, (Mal.) From the reputation it enjoyed as an antidote in poisoning, it obtained its name *Alexiteria*. According to Burman[1] it is regarded by the Cingalese as a specific in serpent bites, even in that of the deadliest, viz., the cobra. Rheede[2] also speaks of its value in the bite of a snake, called by the people of Malabar, *Hereti mandel*, whose bite, though not immediately fatal, is followed by a state of cachexia, which after a time terminates in death.

Antidesma alexiteria.
Amtee (Hind.)
Nolei-tali (Tam.)

Mesua ferrea, Linn., (Sp. Pl. 736; Roxb. Flor. Ind. ii, p. 605,) the *Bellatta Tsjampakam* of Rheede, (Hort. Mal. iii,

(1) Thes. Zeylan. p. 22. (2) Op. cit. p. 116.

p. 63, tab. 53,) the *Nagesur* of the Taleef Shereef, (p. 164, No. 976) A Guttiferous tree, in many parts of India, known by the names of *Nagasur, Nagesur,* (Hind.) *Nag-kushur,* (Beng.) *Ken-gan,* (Burm.) *Nahor,* (Assam.) *Naghas,* (Cing.) Its fragrant flowers, sold in the bazaars under the name of *Nagesur* or *Nag-kasar,* are much valued, not only as a perfume, but as a stimulant medicine, and these as well as the leaves are much used in Bengal as an antidote to snake poison (O'Shaughnessy.) As an antidote poison they are also noticed in the Taleef Shereef. Rheede likewise states that the bark of the tree, taken internally, is sudorific, and locally applied in the form of powder is serviceable in snake-bites.

Mesua ferrea.
Nagasur or Nagesur (Hind.)

Salvadora Persica, Garc. Roxb. (Coromand. Pl. iv, p. 26, tab. 26,) the *Rivinia paniculata* of Linnæus, the *Cissus arboreæ* of Forskal, (Flor. Ægypt. Arab. p. 32) the *Peeloo* of the Taleef Shereef. (p. 54, No. 292.) A tree, Nat. Ord. Salvadoreæ, inhabiting Egypt, Arabia, Persia, Scinde, and other parts of India. Its Oriental names are *Arak, Kemaverius,* (Arab.) *Pilu kharjah, Mesnak,* (Egypt.) *Ooghai-marum,* (Tam.) *Ghoonie-manoo, Pedda warago wenki,* (Tel.) *Piloo-kurjal.* (Hind.) The bark is powerfully acrid and applied to the skin causes vesication ; as a stimulant, according to Roxburgh, it promises to be a medicine of considerable power. Forskal speaks of the bruised leaves being applied to tumours, &c. ; but, he adds, that the tree is chiefly valued for its "*Vis anti-toxica,*" so much so indeed that its virtues are lauded in verse. In Dr. Imlach's Report on Snake-bites in Scinde, quoted at the commencement of this paper, several cases are mentioned in the tabular record, in which "*Pilloo seeds*" were administered internally. They are said also to be a favourite purgative. The seeds of this tree are doubtless those alluded to.

Salvadora Persica.
Piloo-kurjal (Hind.)
Ooghai-marum (Tam.)

The last plants which we shall notice, and those briefly, are *Allium cepa,* and *Allium sativum,* the common Onion and Garlic, which are too well known to need description. From a very ancient period, a belief has prevailed that serpents have a peculiar aversion to the smell of the onion and garlic, and that they will avoid all places

Allium cepa and *Allium sativum.*
Garlic and *Onions.*

where these are placed(1). Russel made some interesting experiments on this point, from which it is evident that the belief is altogether "a vulgar error." The Romans employed both these bulbs, externally and internally, in the bites of venemous reptiles, especially the scorpion. From Dr. Imlach's Tabular Record, it appears that onions form a very large portion of the treatment of snake-bites by the people of Scinde. I have taken the trouble to analyze this table, and find that out of the 306 cases, "onions and ghee" were administered internally in 104 cases; of this number 83 recovered and 21 died. This at first sight appears to be a large percentage of recoveries, but it is not so when compared with the other forms of treatment; of the total 306 cases of snake-bites, the deaths under all sorts of treatment and no treatment at all, were 63, giving an average of 20·58 per cent. of fatal cases; whilst in those treated with onions and ghee the mortality is about 25·30 per cent. Brown, in his journey to Dar-fur,(2) states that the natives of that country cure the bite of the scorpion by immediately applying bruised onion, which is renewed till the pain subsides.

The following list comprises the names of other indigenous plants, which are employed in the treatment of snake-bites.

Name.	*Part used.*	*Authority.*
Averrhoa carambola.....	Wood.....	Burman Thes. Zeylan, p. 148.
Bergera Königii.....	Bark and root.....	Roxburgh Flor. Ind. ii, p. 374.
Calonyction grandiflorum	Seeds.....	Ainslie Mat. Ind. ii, p. 355.
Hugonia myrtax.....	Root.....	Rheede Hort. Mal. ii, p. 30.
Croton tiglium.....	Leaves.....	Ibid ii, p. 62.
Cucumis colocynthis.....	Fruit.....	Sonnerat Voyages ii, p. 54.
Dracontium podophyll...	Tubers.....	Martius Mat. Med. Bras. ii, p. 95.
Flacourtia separia.....	Roots.....	Rheede Hort. Mal. v, p. 77.
Vitex altissima.....	Leaves.....	Ibid v, p. 3.
Rottlera tinctoria.....	Leaves & fruit.....	Ibid v, p. 42.
Pongamia glabra.....	Juice of leaves.	Ibid vi, p. 6.
Butea frondosa.....	Bark.....	Ibid vi, p. 30.
Samerda Indica.....	Leaves.....	Ibid vi, p. 32.
Bignonia chelonoides.....	Bark.....	Ibid vi, p. 48.
Nyctanthes sambac.....	Root.....	Ibid vi, p. 89.

(1) Pliny. Hist. Nat. Lib. xx, cap. 23.

(2) Pilkington's Collect. of Voyages. xv, p. 143.

Name.	*Part used.*	*Authority.*
Jasminum pubescens.....	Root.....	Rheede Hort. Mal. vi, p. 95.
Zapania nodiflora.....	Juice.....	Ibid x, p. 93.
Polycarpæa spacadacea...	Plant.....	Ibid x, p. 131.
Menyanthes Indica..... ...	Plant.....	Ibid xi, p. 56.
Pardathus chinensis.....	Leaves....	Ibid xi, p. 74.
Ipomæa campanulata.....	Plant.....	Ibid xi, p. 115.
Polianthus tuberosa.....	Root.....	Von. Tschudi's Peru, p. 433.
Acacia serissa.....	Bark.....	Taleef Shereef, p. 94, No. 564.
Amelpodi ?.....	Root.....	Rheede Hort. Mal. v, p. 101.
Ben-moenja ?.....	Bark.....	Ibid v, p. 113.
Belutta-amelpodi ?.....	Root.....	Ibid vi, p. 83.
Maravara tsjembo ?... ,....	Juice.....	Ibid xii, p. 20.
Kussowndie ?.....	Seed.....	Taleef Shereef, p. 123, No. 740.
Kokid ?.....	———	These substances are all mentioned in Dr. Imlach's paper (op. cit.) as being used in the treatment of snake-bites by the people of Scinde. Any information regarding them will be welcome.
Uck ?.....	Leaves ..	
Naglee.....	Grain ?...	
Toore *(Pharmaceum mollugo Linn. ?)*.....	Seeds.....	
Nangale Wal ?.....	———	
Kird	Root.... ..	
Gogaree ?.....	Wood.....	

CONCLUDING REMARKS.

We have now accomplished the object we had in view, in commencing this paper, and considered *seriatim* the principal of those Indigenous plants which, either from the opinion of the natives, or from the result of actual experiment in the hands of Europeans, enjoy the reputation of possessing antidotal powers in snake-bites; and the result, it is much feared, cannot, on the whole, be regarded as satisfactory or conclusive. The three Aristolochias, especially *A. Indica*, the *Euphorbia ligularia*, the *Dœmia extensa*, the *Eupatorium ayapana*, the *Ophioxylon serpentinum*, and the *Strychnos colubrina*, are the only plants which, either from their ascertained properties, or from the character of the families to which they respectively belong, or from the test of actual experience in the hands of Europeans, are worthy of the attention of future investigation; and even in the use of these, the numerous and important disturbing causes which may materially influence the result as mentioned in the introductory remarks, require to be carefully borne in mind.

In so serious an accident as the bite of a venemous snake, occurring in the human subject, when the life or death of

the patient in the course of a few hours depends upon judicious treatment, the medical man is not justified in instituting experiments with remedies of doubtful character, to the exclusion of those which experience teaches us are the most to be relied upon. Arguing upon the theory broached by Martius, Humboldt, and other eminent authorities, that where a disease is endemic to any extent, Nature provides in the vegetable or mineral kingdom in the immediate locality, the required remedy, a theory we believe to be based on correct observation, we may conclude that India does possess a remedy for accidents of such frequent occurrence as snake-bites. As, however, the serious nature of the malady precludes our ascertaining what these are by experiments on man, we must resort to the lower class of animals, and by this means it is hoped that ere long we may gain a correct knowledge of the *Vis anti-toxica* of many plants, and hence that we may subsequently resort to them in man with confidence and success.

Till, however, that period arrives, we would advise that the ligature above the wound, free suction, incision of the bitten part, cauterization and the use of ammonia and diffusible stimulants, form the principal features of treatment, those being the measures, as far as we know at present, on which the greatest reliance may be placed.

APPENDIX.

TANJORE PILLS.

Few remedies have enjoyed in India a higher repute than the so called *Tanjore pills;* but of late years they appear to have fallen into disuse, probably from ignorance of their true composition, or from carelessness in mode of preparation; hence I am induced to transcribe, from Dr. Russel's valuable work on Indian Serpents, (Vol. i, p. 77. et. seq.) full directions for their preparation, as the work itself is now scarce, and too costly to be available to the generality of readers in India.

Mode of Preparation.—Take White Arsenic, the roots of Velli-navi(1), the roots of Neri-visham(2), the kernels of Nervalum(3), Pepper and Quicksilver, of each an equal quantity. The quicksilver is to be rubbed with the juice of the wild cot-

(1) Supposed by Capt. Munro to be *Dœmia extensa.*
(2) Crinum Asiaticum?
(3) Croton tiglium.

ton, (Calotropis gigantea,) till the globules become invisible. The arsenic being first levigated, and the other ingredients reduced to powder, are then added, and the whole is beaten up together with the juice of the wild cotton, (Calotropis,) to a pilular consistence.

In the mass prepared by Dr. Russel himself, four drachms of each of the ingredients entered into the composition, but when prepared including the juice of the Calotropis used in the preparation of the mercury, and in forming the mass, it weighed four ounces and one drachm. A drachm will form on an average eight pills, but of these, when in a dried state, ten or eleven were found to weigh a drachm.

Mode of Administration.—To a person bitten by a cobra one of the pills rubbed down with a little warm water is to be given. In a quarter of an hour, if the symptoms increase, two pills more should be given, and if these do not prove sufficient, another pill should be given an hour after. This is generally found sufficient. The wound should be dilated and the warm liver of a fowl applied to the part!

For the bite of all other vipers, two pills should be given at once, and if the poison be not counteracted within half an hour, two pills more may be administered; but if the life of the patient should appear to be in great danger, four pills may be given; an incision should be made on the top of the head, and a pill pulverized should be first rubbed on the wound, then the liver of a fowl applied to the bitten part.

For the bite of all other less poisonous snakes, one pill every morning for three days is sufficient. The patient ought to keep a regimen for six days, taking only congee (rice water) and rice, or milk and rice. He should abstain from salt, and his drink may be warm water. Sleep is to be prevented for the first twenty-four hours.

Dr. Russel tried with the pills prepared by himself, some experiments on unbitten dogs and chickens. The result was that two pills given on a fasting stomach to a dog generally produced vomiting and purging, though, not violent, nor attended with symptoms of much disorder; and the animal was very well after six or eight hours. A dose of four pills produced more evident disquietude, with repeated vomitings, and more violent purging, but in twelve hours, the appetite for food returned. In chickens well grown, one pill produced repeated purgings, and in two or three hours convulsions and death. Half a pill likewise proved fatal,

but more slowly. Chickens survived a dose of a fourth of a pill. When the pills were given in a liquid form to dogs, they often appeared to produce a burning heat in the throat, with a large discharge of saliva; but this was not observed where the pills were swallowed at once, concealed in crumb of bread moistened. In the original directions, the pill is ordered to be powdered and mixed with water. This probably is with a view to hasten its operation; a circumstance of material consequence in cases of the bite of venemous snakes, where the progress of the poison is sometimes incredibly rapid.

Dr. Russel details the particulars of several cases of dogs bitten by cobras in which these pills seemed to exercise an unmistakable influence in procuring recovery; in some, however, the fatal event was not prevented. These are too lengthy to be given in detail.

In conclusion, we may mention some trials made by Dr. Russel with two of the ingredients, viz., the root of the Velli-navi, and that of the Neri-visham.

First, with regard to the Velli-navi root, five grains almost without exception, killed chickens in little more than an hour. They sometimes were visibly affected in ten minutes, but generally not in less than half an hour. They first purged once or twice, then drooped, and couched on their belly. The throat was next affected with a constant tremulous motion, and the head at times drawn downwards, convulsively. The tremor extended to the whole body, the legs soon became convulsed, and the bird expired, sometimes in forty minutes, and almost never later than in an hour and twenty minutes. One or two chickens that escaped, were much indisposed for several hours; but none escaped where the throat became convulsed. The crop in all became much inflated, but nothing remarkable was discovered upon dissection.

To a stout dog, half a drachm of the Velli-navi, mixed with a bit of bread sopped in milk, was given in the morning, before he had taken any food. The dog, in twenty minutes, became sick, stood with his mouth open, lolling his tongue out, and panting, but drank of milk and water when offered to him. The sickness increasing, he refused to drink more, and howled as if in much distress. He lay down, and his flanks laboured much. In about an hour he vomited, and became still more unquiet. In this state he continued three hours, having vomited twice more, at intervals.

He had no stool till after noon. In the evening he was very well.

The Neri-visham, in a dose of five grains, produced no other effect on chickens than purging gently once or twice. The dose increased to ten grains, had a little more effect in the same way. An infusion of two drachms of the root in water was given to two chickens, to one, one-fourth part; to the other, the remainder. The first seemed no more affected than with the powder; the other appeared sick, drooped for an hour or two, purged moderately, and then became lively as before.

It is certainly to be wished that these ingredients could be determined with certainty. Dr. Russel seems to have overlooked the influence of the arsenic, which doubtless plays no insignificant part in the cure of these cases.

Art. II.—*Medical Topography of Cochin.* By Francis Day, Esq., F.L.S., Civil Surgeon, Cochin.

PART III.

(Continued from Vol. III, p. 261.)

Wounds and Injuries are very common in Cochin, and in five years ending December 31st, 1858, comprised 10·4 per cent. of the total admissions, being considerably in excess of any Dispensary in the Presidency, with the exception of Raneepett, where, in the same period, these admissions were 10·8 per cent. of the total cases treated.

The vast majority of injuries are due to slight chisel and other cuts, or to contused wounds received from hammers: the number of carpenters, coopers, and blacksmiths who find employment in the place being very great, severe injuries are also of frequent occurrence; but as accidents may be sustained anywhere, and the treatment must be much the same in all places, it is unnecessary to enter fully into this class of admissions.

The natives of Malabar were, a few years since, stated to be very averse to undergoing operations, but this objection no longer exists; probably in no part of India are they at the present time more willing to submit to the knife than in Cochin: capital operations, averaging about one a month. The benefits of chloroform are known and appreciated throughout the district.

Burns are not unfrequent. At the Roman Catholic, Hindoo, and some other feasts, the practice of constantly firing guns obtains. These small pieces of Artillery are sometimes made of hollow bamboo, having a wooden plug at one extremity, which is firmly bound against a stone or a tree, occasionally a charge of small gravel is added, in the belief that shotted guns cause the loudest explosions. The result sometimes is, that they burst, blow out the plug at the wrong end, or the gravel is accidentally discharged amongst the crowd. Rockets are now and then used, often causing severe, or even fatal injuries.

Concussions of the brain, contusions, fractures, and sprains, are common reasons for admission.

Toddy drawers not unfrequently fall from cocoa-nut trees, and several instances have occurred of cocoa-nuts dropping down, or of the trees being blown down, and injuring either those living in huts beneath, or passers by. Blocks also on board-ship sometimes fall from aloft, and injure some of the crew. The cattle which roam about everywhere, as already stated, have been known to knock down persons in the public roads, and even to occasion fatal injuries. Also, owing to the prevalent but unsafe custom of all natives carrying knives, cases of stabbing are very frequent. Protrusion of the intestines externally, even when covered with dirt, is not very often a cause of death: the majority of these cases recovering, unless the bowel has received some injury.

In 1858 a novel mode of procedure appears to have been successfully practised. A case of stabbing having occurred, and a portion of the liver protruding through the wound, there was some difficulty in returning it, the extruded portion, 1½ inches long, was cut off: *the patient did well.*

A curious case of robbery, combined with a skilful but unprofessional operation, came under notice. On February 16th, 1861, a native female proceeding to the bazaar to buy toddy, drank a little more than was prudent, a man seeing her in this state, and wishing for some gold earrings which she had on, deliberately cut off both her ears, with which and the ornaments they contained, he safely decamped.

Dislocations are uncommon causes of admissions, not only in Cochin, but in the interior of the country, there are persons found who are able to reduce most varieties.

Under the head of Gun-shot wounds a few cases are occasionally admitted. In 1854 a party of preventive peons

fired upon some smugglers, with buck shot and bullets, killing and wounding above eleven.

From assuming medical charge of Cochin in January 1859 until June 1861, twenty-four cases terminated in amputations of limbs, nine being due to injuries, and fifteen to disease, all were performed under chloroform, and taking in addition the seven amputations which occurred in the two previous years, it appears that out of the last thirty-one instances, 4 or nearly 13 per cent. proved fatal.

	Injury.		Disease.	
Limb Removed.	Cases.	Deaths.	Cases.	Deaths.
Thigh	0	0	4	1
Leg	3	1	8	0
Arm	4	1	3	0
Forearm	6	0	3	1
Total	13	2	18	2

Before entering into certain causes which accidentally augmented the mortality, it may not be amiss to compare the results with those of Europeans in Europe. The following in London and Paris are extracted from *Erichsen's* Surgery.

Operations for Injuries.

	Cochin.		London.		Paris.	
Thigh	0	.....	60	℔ cent. died.	73	℔ cent. died.
Leg	23	℔ cent. died.	17	„ „	63	„ „
Arm	25	„ „	28	„ „	66	„ „
Forearm	0	.....	0	.....	56	„ „
Total	15	„ „	35	„ „	65	„ „

Consequently, in Cochin, amputations amongst Asiatics resulting from injuries, end far more favorably than those upon Europeans in their own country.

The two deaths which occurred in Cochin, after amputation (in cases of injuries,) had been performed, occurred as follows. In the first, the leg had been carried away by a rocket; 18 hours previous to admission hæmorrhage had been profuse, and he only survived the operation a few hours. In the second case, the man had fallen from a cocoanut tree. Some hours after the amputation, he complained of pain in the bowels, his pulse sank, the abdomen became distended, and the bed was suddenly deluged with arterial blood, which gushed out from the anus, and death almost immediately ensued.

Operations for Disease.

	Cochin.			London.			Paris.		
Thigh.....	25	₱ cent.	died.	19	₱ cent.	died.	60	₱ cent.	died.
Leg.....	0	„	„	16	„	„	49	„	„
Arm.....	0	„	„	31	„	„	10	„	„
Forearm..	33	„	„	0	„	„	6	„	„
Total...	11	„	„	18			43	„	„

Consequently, amputations for disease show a smaller proportion of fatal cases in Cochin than in Europe.

The two deaths which took place after amputation (for disease,) in Cochin, occurred as follows. The first appeared due to the action of chloroform, on a weakened heart; two hours after the forearm had been removed, the patient took some conjee, vomited it; dyspnœa is said to have immediately commenced, and his attendant affirms that he fell back dead. The other fatal case was of an individual 65 years of age, whose thigh was removed for elephantiasis, he sank three days subsequently.

A year rarely elapses without a male or female being admitted with a mortal wound in the throat—the suicidal act having generally been committed in a fit of insanity.

Diseases of the Eye, in the five years ending December 31st, 1858, comprised 2·02 per cent. of the total admissions on the Western Coast, 1·30 on the Eastern, and 0·60 on the Hills.

The admissions in Cochin were 2·4 of the total, at Calicut 3·1; but not above 1·8 in any of the other stations on the Western Coast. In fact, the admissions at the most southern latitudes of this coast, far exceed those further north. The same obtains on the Eastern side of this Presidency. The proportion of cases being far more at its Southern than at its Northern extremity. Eye diseases form a larger proportion of the total treated in the plains in the Madras Presidency, than they do on its sea coasts. Thus, at Cuddapah, they are 4·6 of the total, but at Kurnool 16·8 per cent.

In Cochin the great majority of admissions are due to *simple opthalmia*, which readily succumbs to local treatment. The natives have great faith in their own remedies, which consist in the application of solid sulphate of copper to the inflamed surface, or the juice of a lime.

Night blindness is by no means rare: there are no appreciable symptoms by which to diagnose it, and local rem$_{e}$-

dies do not seem to be of any material benefit. General treatment is sometimes of use.

Disease of the Skin, in five years ending December 31st, 1858, comprised 5·05 per cent. of the total diseases on the Western Coast, 5·70 on the Eastern, and 2·32 on the Hills.

On the Western Coast Cochin stands pre-eminent (7·1) in this class, and the per centage decreases proceeding northwards. On the Eastern Coast it is much the same along its whole extent. On the Hills the least is at Ooty (1·4), and the most at Mercara (4·8.)

The prevalent form is *itch*, or *the Malabar*, as scabies is generally designated: the irritation of which is thought nothing of, unless it runs into pustules or ulcers. One drachm of mercurial ointment to one ounce of sulphur used externally, and cream of tartar and sulphur given at the same time internally, appear the best remedies. It is a common idea in Malabar that the moon exercises an influence on itch.

Ephelides or *Liver Spots* are commonly seen in two varieties—the tawny and the dark: they usually commence about the beginning of the rainy season. *Tawny discoloration*, called "*sām*," appears to consist of some loss of colouring matter, the part becoming lighter than the adjoining integument; but there is no loss of sensation in it, and no further change occurs. The places where they are most usually perceived, are the chest and neck. As a rule no constitutional symptoms are present, though occasionally there is dyspepsia. This variety is considered by the natives as a pleasing change in the colour of their skin, in fact as beauty spots.

The second variety of liver spots is the dark: the cuticle becomes nearly black, and the places are sometimes rough, often itchy: they are believed to foretell disaster.

When affected persons are tired of these pretty marks, or frightened at the signs of impending evil, the following treatment is generally adopted. Every second day a cowrie shell is put over night into lime juice, the next morning equal proportions of this solution and sandal-wood oil are mixed and applied to the spots, which appear discoloured. In time, whether remedies are used or not, the marks generally disappear.

Albinoes are occasionally met with in this part of India, and in some natives the colouring matter of the skin leaves large portions of the body, which become of the same

tinge as Europeans. This is generally seen in the hands or feet, any hair growing on these places also becomes white, the surface is sometimes numb, and it is then generally a leprous complaint. If no numbness is present in any portion of the body, and no other signs of leprosy exist, it is not a decidedly leprous disease. It has already been stated that ulcers in this place have a tendency to leave the skin white.

Prickly heat [Lichen Tropicus] is common in and around Cochin, scratching which, often causes extensive inflammation of the skin: the best remedy is change of air for a a few days to Alwaye, where the bathing generally removes it.

Herpes and *Eczema* are very common, and though both are most frequently perceived during the N. E. monsoon and succeeding cold months, still this is not invariable. When the fall of rain in the S. W. monsoon has been very great, Herpes Preputialis has occasionally shown itself extensively. Herpes Zoster is by no means a rare affection here, and it is curious that a vulgar error which exists in some parts of England, is also a prevalent belief amongst the natives of Cochin, namely, that when the two extremities of Herpes Zoster meet around the body, death immediately ensues.

Other Diseases form 8·4 per cent. of the total admissions into the Cochin Dispensary; and leprosy, or E. Græcorum is here added to them, on the principle that its relationship to E. Arabum is so intimate, that were one placed amongst Skin Diseases, so ought the other to be. But as both seem to be constitutional affections, closely related to one another, it will be most appropriate to place them together.

Amongst the classes of diseases which are placed under this division in the Medical Code, but totally omitted in the "New and Improved Classification of Diseases," is the common affection in Cochin, of *Elephantiasis Arabum*, or Cochin Leg.

Europeans are nearly exempt from this disease, but about five per cent. of the Native and Eurasian population appear to be attacked by it, and many more suffer from it in a masked form. Males and females are about equally affected. Children may be attacked as early as four years of age, but it is uncommon before fifteen or sixteen. The disease is considered in the light of a family disgrace.

Persons of all occupations and castes, whether strictly vegetarians, partakers of mixed diet, or mostly consumers of fish, are indiscriminately attacked. The indigenous Black and White Jew, the Indo-European and the Native, appear equally amenable to its influence ; and although the poverty stricken classes are most liable, the richer do not escape.

It is very questionable whether this disease is, or is not, often hereditary. It is not confined to natives of these parts or their descendants, for those from other districts of India, coming to Cochin, are occasionally attacked. Detachments of native troops, who rarely continue more than twelve months in Cochin, and three years on the Western Coast, do not appear to have ever produced a single case.

Elephantiasis Arabum consists, constitutionally, of a peculiar fever [elephantoid], which returns at irregular intervals ; and locally, of hypertrophy of the skin and subjacent areolar tissue, due to adventitious deposits.

This disease is most commonly perceived in the lower extremities, both of which are very often attacked at the same time. But many instances are found in which all the extremities are simultaneously affected. In the male, the proportion in which the scrotum suffers, is about 3 per cent of the cases : in the female, though one mamma may be attacked, it is rarely that both are.

The constitutional symptoms are those of *elephantoid fever*, which is, as a rule, present in all cases, although badly developed in a few exceptional instances. It has the appearance of a severe quotidian intermittent, or remittent, and generally has three paroxysms. Co-existent with the pyrexial symptoms, an enlarged and painful gland invariably exists in some portion of the body. Should a leg or an arm be the site of the local symptoms, this enlarged gland will most commonly be found in the groin or axilla, sometimes in the ham, or bend of the elbow : it never suppurates.

The local symptoms may occur along with, or just subsequently to the constitutional. In the few first attacks of elephantoid fever, they are generally very indistinctly observed, but become more decidedly marked at each succeeding one. They consist of local effusions of varying characters, which commonly continue to augment for two or three days after all feverish symptoms have subsided. From the site of these effusions to the enlarged glands, dusky or reddish lines extend, which, under the finger, have a chord like feel.

The affection so often appears subsequent to the receipt of an injury, or to a disease (as gonorrhœa or syphilis) when the local effusion occurs in the injured spot, as to make it probable that they, as exciting causes, may bear some analogy to one another. It may also follow the healing of ulcers or the cessation of some accustomed discharge. Its origin is probably due to the drinking water. Elephantiasis, like some other constitutional diseases, not unfrequently is perceived to disappear from one place and reappear in another. At least the elephantoid effusion, if it has not become organized, occasionally shifts about, and even within a few hours. This alone would be sufficient proof of the constitutional character of the affection: it is "a blood disease."

There are numerous subdivisions of E. Arabum, which have been detailed elsewhere.(1)

As the disease progresses, the local symptoms become very apparent to the most casual observer. If the lower extremities are affected, they become by degrees a rounded shapeless mass, hard and unyielding to the touch, and not pitting upon pressure. The joints are never attacked, there is no increase in the development of the nails, though warty tubercles and elevations may appear upon the skin, which becomes hypertrophied. The papillæ of the corion often become of enormous size.

The disease may remain stationary for years. The number and frequency of feverish attacks, being generally in a direct ratio to the amount and rapidity of the increase in size of the local effusion. Bilious vomiting is liable to be very severe in cases in which pyrexia frequently returns. As a rule, the health does not appear to suffer much, until the disease has lasted some time. In a few old standing cases, the face becomes sallow, and the health suffers.

Elephantoid effusions may become great, and end in abscess of the subcutaneous areolar tissue, in which they are effused; and this sometimes leads to recovery, though, on the contrary, fatal hectic fever may ensue.

The character of elephantoid effusion is that of an albuminous fluid, which occurs in the subcutaneous areolar tissue of the affected spot. If in the course of a period of varying duration it is not absorbed, it becomes organised. The inner surface of the skin is next implicated, and it finally appears as if it and the subjacent areolar tissue had become one condensed, thickened structure.

(1) *Elephantiasis.* "Madras Quarterly Journal," Vol. I, p. 37.

This disease has no relationship with malarious fevers. It most generally commences during the monsoon time, and antiperiodics or other remedies cannot stop the paroxysms from going through the usual number. Smoking bang, and drinking toddy, appear deleterious; but, on the contrary, attacks are sometimes delayed by eating opium. Leaving the affected locality [which in Malabar does not extend more than ten miles inland] generally checks the disease. Tonics are advisable.

The following instance is one among many, showing the local influence exerted by this coast upon cases of elephantiasis. Mr. ——————— having been ineffectually treated by long incisions, issues and blisters, left Cochin, and was absent eight years at sea. After that long period he returned perfectly recovered in health, all signs of effusion had disappeared. Shortly after his return, elephantiasis again showed itself, and he is now hopelessly affected. Absence may improve the general health, and upon the individual's return he may be free from attacks. But he should never drink the water of Cochin.

The local treatment consists in reducing the amount of irritation by leeches, &c., whilst effusions are occurring, or pain present. In the chronic stage, in attempting to absorb what has been effused, for which purpose Biniodide of mercury ointment appears most efficacious, [gr. i. to ʒv. of lard] the natives make use of an infusion of Marsh Mallow.

The question of the probability or the reverse of the return of the disease after amputation, is important. Whether it returns or not, a limb affected with E. Arabum, and which has become such a source of irritation to the system as to occasion hectic fever, is not only useless to the sufferer, but will occasion death by the continued irritation it is producing, and consequently *must* be removed.

E. Arabum, as already mentioned, is a constitutional, not a local disease, and although the removal of a mass of elephantoid effusion may assist the patient's constitution to rally and shake off its further progress, such does not always occur.

Case No. I.(1) Leg removed in February 1858; no return of elephantoid fever had taken place up to June 1861.

Case No. II. Leg removed April 1855, up to the same period no return of the fever.

(1) These cases are given in No I. and No. IV. of the *Madras Quarterly Journal*, with two others.

Case No. III. Leg removed in March 1857, in June 1861 the disease had not returned.

Case No. IV. Left thigh removed February 29th, 1859, for ulcerated elephantiasis: the right forearm being then also affected, about a year after the operation elephantoid fever returned, with augmentation in the size of the forearm, but the thigh was not re-attacked until August 26th or 13 months subsequent to the operation. In January it returned again. Now (Sep. 1861) both forearm and thigh are free from any enlargement, fever has been absent nine months, and his general health is very good.

Case No. V. Right leg amputated below the knee, through the upper part of the diseased mass May 14th, 1860. Fever was absent for seven months, but subsequently returned, though with less frequency and severity than before the operation: his general health has improved. At present, September 1861, his left leg is slightly enlarged.

Admitting that it is questionable whether we can draw reliable deductions from only five cases, still as far as they go they are valuable, and the following results are obtainable from them.

Removal of a single extremity, affected with E. Arabum, may eradicate the disease.

Removal of a single limb [whilst another portion of the body is also affected] which is causing severe irritative fever, checks that fever and improves the general health, but the disease is not eradicated.

Amputation through a mass of elephantoid effusion is unadvisable, the affection being more likely to recur than if the whole local disease were removed.

Erysipelas is believed by many to be often a precursor of E. Arabum, certainly the disease, which is rare in India, does exist in Cochin; but it is not so certain [although *not denied* here,] that it has this character. It appears probable, that if it does excite this disease, it does so as a local injury would, as elephantoid fever does not form part of this complaint in Cochin.

Elephantoid fever, though existing in elephantiasis, is not merely a diagnostic mark of this disease, it being equally frequent in E. Græcorum, whilst a class of cases exists intermediately, having locally ulcers, eruptions or discharges which may incline either to elephantiasis or leprosy: if to the latter, there being usually some congenital shortening of the toes or fingers, or numbness of the lower

extremities, as high as the knees or along the back. The following enquiry would no doubt prove very interesting, whether elephantoid fever exists amongst the jungles of the Western Ghauts, where malarious fevers are so common. From observations and extensive enquiries, it appears more than probable that elephantoid fever is, as a rule, lost at a distance of less than ten miles inland, where malarious fevers become of the greatest intensity.

Lepra Græcorum, or Leprosy, is unfortunately so frequent here, that a lazaretto(1) was found necessary, and constructed probably by the Dutch. The date on the doorway being 1728.

No Europeans in Cochin appear of late years to have suffered from leprosy, but East Indians occasionally fall victims to it, although it more particularly affects the native community.

East Indians and natives of all castes, ages, and both sexes, are liable to this loathsome malady. The leper, as long as he can procure money, is not expelled from the society of his fellow creatures, who live in the same house, partake of the same food, and even intermarry with him. But if money fails him, he is driven forth to wander about, subsisting on charity, until death mercifully relieves his sufferings.

The nature of this disease appears to render these unfortunate beings extremely obstinate: they are morose, inclined to brood in solitude, drink spirits, eat opium, smoke ganjah. In fact do anything, to wean them from a recollection of the past, a view of the present, or a thought of the miserable earthly future before them, as they all believe this disease to be incurable.

There appears no age at which leprosy may not commence, from infants in arms, to fifty or even sixty years of age. It is distinctly traceable in some families by hereditary transmission: it not uncommonly passes over one generation. The contagiousness of leprosy appears doubtful. The discharge from leprous sores is properly avoided. It is considered as a disgrace for this disease to exist in a family.

Leprosy in Cochin is a constitutional malady, which occasions certain morbid changes in the sensation, colour, or thickness of the skin, and subsequently gives rise to

(1) For a description of this building, and a full account of the leprosy of the Malabar Coast, as existing in and around Cochin, see *Madras Quar. Jour.* Vol. I, p. 286, et. seq.

further lesions in the mucous membrane, of the air passages, and even the deeper structures of the body. Elephantoid fever is almost as commonly perceived in leprosy as in elephantiasis; belonging to both these blood affections, it appears to point them out as allied diseases. E. Arabum is a common sequeæl of E. Græcorum.

There are two distinct forms of leprosy in Cochin, and these two forms may be combined in one person. Should either variety attack a child before puberty, both the growth of the body and development of the mind, are invariably more or less impeded.

Anæsthetic Leprosy is the most insidious of the two forms, and scarcely appears to shorten the span of life. Its first symptoms appear to be a dyspeptic attack, until some patches show themselves of a lighter character than the surrounding integument, and in which the sensation gradually becomes lost.

Local ulceration also is commonly the first appreciable symptom, sometimes commencing subsequently to external injury, more usually without such. A watery bleb, from $\frac{1}{4}$ to $\frac{3}{4}$ of an inch in diameter, shows itself on the outer side of the plantar surface of the foot, at the heel, or on one of the toes, generally over a metatarsal phalangeal articulation, more rarely at the last phalanx. The ulcer, which is circular, instead of expanding, eats directly downwards, as if a piece had been removed with a circular cutting instrument, and completely destroys the heads of the bones, which enter into the composition of the subjacent joint. These ulcers may merely occur in one spot, in several simultaneously, or in regular succession, destroying each joint of the fingers or toes, commencing from their distal extremities. The most common result is, that the portion of the digit, anterior to them, sloughs away, or it may be ankylosed, or absorption of the heads of the bones without external ulceration, may occur. Large joints never suffer in any of the preceding ways. Anæsthesia is invariable, it begins at the extremities of the digits, and rarely stops before the knees or elbows are reached. It is also common on the side of the spine.

The disease usually progresses very gradually, anæsthesia increases, and smaller joints are successively lost. Skin diseases and ulcers are accompaniments; ozæna is nearly invariable; and epistaxis frequent. Eye-sight may be destroyed by ulceration; or affections of the chest, bowels, or

dropsy, remove the miserable sufferer. Elephantoid fever is not invariable in this species of leprosy.

Tubercular Leprosy runs its course more rapidly than the other form, but amongst natives is not of that acute species, which is described as occurring in Europe. In a few East Indians, a sub-acute variety has been observed as compared with the anæsthetic of the natives.

The three stages may generally be detected, namely, that preceding the eruption, the eruptive stage, and the breaking down one. Skin complications are more frequent than in the other form.

The final stage is not deferred so long as in anæsthetic leprosy, and though no joints may have been lost, it is the more loathsome of the two. The face, and sometimes the whole body, is covered with tubercles: bronzed patches of skin: thickening of the ends of the fingers, lips, nose, and ears: falling off of the hair: ozæna: loss of structure of the nose, but none of the lighter colored insensible blotches, or falling off of the digits as seen in anæsthetic leprosy.

Burning in the feet [*Ignipeditis*] is not very uncommon during the monsoon time and the prevalence of winds from the S. W., it is also stated to arise from the land winds.

Ignipeditis is frequently called Beriberi, to which it is occasionally related; but it is so often a distinct affection, and accompanying either fever, rheumatism, dysentery or diarrhœa in Burmah, and phthisis in all parts of the world, that it must be regarded as a disease. It is often present along with fissures in the soles of the feet, but the two are distinct affections; this last being very rare around Cochin, although a species of it, that appears as if the heel and foot had rested upon hard pebbles, which had left indented marks, is occasionally observed.

There are two species, the moist and the dry, as well as apparently an intermediate variety, which may be called the feverish one.(1)

In typical cases of the moist and dry varieties, there is a sensation of burning in the soles of the feet, often extending as high as the knees, either accompanied by a very moist perspiring, or a dry cracked surface. The hands may be affected in the same manner. After the disease has lasted

(1) In 1838, in the Salem Jail, a disease which appears to be a variety of this, is mentioned in the *Medical Topography of the Division* as having broken out. The eyeballs suffered, the corneæ ulcerated, and all attacked expired within ten days.

a short time, pyrexia sets in, mostly about 12 A. M. or 7 P. M.; whilst there is loss of sleep at night time. Should there be evening fever it usually causes rapid emaciation.

Excluding external appearances, the symptoms observed in the two species are nearly identical.

In the moist, which is generally the least severe, the pores of the skin on the soles of the feet, and often on the palms of the hands appear always open, causing the surface to be constantly wet. In the dry variety, the cuticular surface is dry and usually cracked.

In the feverish variety a rather different train of symptoms occurs. A patient complained of having suffered from a burning sensation in the stomach and tongue for some months; but on the preceding day it had commenced in the thumb, index, and middle finger of the left hand, extending up the course of the radial nerve: also in the middle finger of the right hand, the same sensation was commencing. The tips of the fingers looked mottled with red, as if congested, and were slightly painful on pressure, or on allowing the arm to hang down. Aconitine ointment was applied three times a day, for three successive days, this caused relief at first, but it was only temporary.

The next symptoms occurred three days subsequently, all the fingers already mentioned as affected, became much more painful, the left hand was obliged to be kept in an elevated posture, there had been no rest the previous night. This increase in the severity of the symptoms was stated to have commenced at 12 A. M. the day before. No pressure could be borne in the course of the radial nerve, or on the tips of the affected fingers, which were more painful than before, and also more red and mottled.

The following was ordered, Carbonate of Potash a scruple, Solution of Arsenic three drops, corrosive Sublimate one-sixteenth of a grain, to be taken every third hour, also a sinapism to be put all round the left forearm, and the hand to be soaked for half an hour in very hot water. Shortly after the hand was taken out of the water, the pain began to decrease, and by the next day the left arm and foot were pretty comfortable. But not so the middle finger of the left hand, where the pain had augmented, but a sinapism around it and the continuance of the other remedies, proved successful in removing the pain.

In this instance it was very apparent that the left radial nerve was irritated.

Ignipeditis may be said to be a most troublesome disease, both to the patient and to the medical practitioner—one which will tax all his skill, and too often baffle all his endeavours to effect a cure. If the fever is frequent, emaciation occurs, and death usually ensues.

Should a native of another part of India be affected, an immediate change is desirable. But no class of cases are more commonly simulated by those who wish to obtain sick leave, and in Cochin, at least, the following rule is found to answer.

If this disease is complained of, but neither fever nor emaciation present, and the patient's weight does not decrease, change of air is unnecessary.

In the moist variety, the soles of the feet or palms of the hands, constantly appear as if they had been macerated in water. In the dry variety, the skin of the palms of the hands or soles of the feet, are harsh, dry, scaly or even fissured.

Scrofula is not a rare affection amongst either the Eurasian or native population of Cochin. (It has already been observed that phthisis is likewise found.) If not perceived in the form of pulmonary consumption, it is generally in that of enlargement of the lymphatic vessels or glands. The testes sometimes suffer.

As in Cochin elephantoid fever, in which glands are always affected, is so very prevalent, the question naturally arises as to whether there is any relationship between the two. But elephantoid fever does not appear to occur in cases of scrofulous disease. Whether scrofula attacks the kidneys to any extent here, *post-mortem* examinations can alone determine. The kidneys are very commonly diseased along the coast, and in one case a scrofulous abscess was detected there after death.

As gout does not exist amongst the natives of Cochin, although one death is given in the mortuary table, the two diseases cannot be looked upon as being in any way related to one another.

Whether scrofula is present in inland stations to the same extent as in Cochin, statistics are not obtainable to show; it being one of those diseases in which the patient, coming again and again for treatment, causes the amount of admissions to give a false idea of the number of cases.

The causes of this disease are as unknown as in other places. In some cases it is hereditary, but not so in others. In one instance, venereal disease, which was treated with too

large an amount of mercury, roused it into action; in a second, immoderate drinking appeared to have produced it; and in a third, working at a furnace, and looking after a steam engine; but in some, no cause could be assigned.

Scrofula is most common among the more drunken, poorer, and diseased classes, but some very respectable Eurasians suffer from it. The climate of this coast, with its great variations in temperature, probably assists in its production.

Hysteria, though very common amongst both European females and Eurasians of both sexes in India, is rare amongst the natives of the country.

Hysterical fits are witnessed in Eurasians, and in both sexes of Europeans on the Western Coast, and even sometimes attacking the native females of Malabar.

Pertussis at times is very severe, but the direct mortality amongst children is not great in Cochin: nearer Calicut it is stated to be much more severe. Recovery is very tardy, and a tedious form of ulceration of the tonsils is not an uncommon sequela.

Tetanus is not frequent, but the mortality amongst those attacked is large; scarcely a case has recovered in the Dispensary since its erection. During the last two years seven instances have come under notice, and five deaths occurred. One of the recoveries took place under a sedative course of medicine, the other was treated in the bazaar, by blisters down the back, but though he recovered, he became paralysed.

Puerperal tetanus appears hardly known, which is curious, considering its prevalence at Bombay. An Eurasian woman was most terribly burnt from her clothes having caught fire, at that time she was six months *enceinte*, and ten days subsequently she had a miscarriage, with arm presentation, two days after symptoms of tetanus set in, which terminated fatally.

Hydrophobia occasionally occurs, but, as immediately a dog with epileptic fits is perceived, an order is issued for the destruction of all straying canine animals: this *pariah* nuisance has abated during the last three years, and cases of hydrophobia are rarely seen.

Hydrocele is common, and readily cured by operation, if performed before all the tissues have become thickened. The injection of pure Tincture of Iodine appears to answer, but it is rather difficult to diagnose between hydrocele

and some cases of elephantiasis of the scrotum, in natives. The history of the case will not always give a clue to the nature of the disease, and the two may co-exist. A patient affected with hydrocele, applied at the Dispensary on October 24th, 1859, complaining of severe pain in and around the right testicle: it appeared that a hydrocele had existed there, which had been burst by an accidental blow with a hammer on the diseased part. Under active treatment the effusion was absorbed, and the hydrocele has not re-appeared.

Granular disease of the Kidneys, or one of the varieties of Cachectic Nephritis, now denominated Nephria, is very common in Cochin.

A history of cases and *post-mortem* examinations must be reserved for a future paper.(1) Albumen may often be detected in the urine of anasarcous patients. The specific gravity of the urine in these cases, varying from 1,004 to to 1,009, according to the progress of the disease.

In old standing cases the pallor of the face is peculiar, as also is the expression of the countenance, the patient appearing prematurely aged, the skin is very harsh and dry, and other well marked symptoms exist.

The youngest patient in whom albuminuria was discovered, was a female of eleven years of age. A *post-mortem* examination having been subsequently obtained, the kidneys were found to be of the peculiar variety described by Dr. Bright as his third.

Although albumen is not invariable in these cases of granular kidneys, the specific gravity has, in no instance, risen above 1,011; the commonest range being from 1,007 to 1,009. On the other hand albumen has disappeared in some cases, and the suspicion has been aroused that it may occasionally be due to perverted nutrition. *Diabetes* is by no means an unfrequent cause of death.

Diseases of the Bladder are unusual, unless due to irritation subsequent to attacks of gonorrhœa, or to a diseased condition of the urine. Since the erection of the Dispensary no case of vesical calculus has been admitted, three or four patients have, however, been treated for small ones in the urethra, evidently renal calculi, which last is not a very rare affection.

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(1) A Dead house having lately been erected in the Dispensary compound, it appears best to leave this subject for a paper at some future date, when a detailed history of cases and necropsies can be simultaneously given.

Prostatic disease is seldom found, and retention of urine from this cause uncommon; when such occurs, it is usually due to stricture of the urethra.

Spermatorrhœa is unfortunately very prevalent. The native treatment for this is as follows:—the patient must keep from unchaste thoughts for forty days, and then take certain remedies. The reasons inducing it are the same as elsewhere, and the results show no difference.

Curvatures of the Spine.—Many cases of the angular variety may be seen amongst natives in Cochin. In one instance a patient in the Dispensary solemnly asserted her belief, that in herself it was due to demoniacal influence. She was thirty years of age, and stated that when about six years old, she was walking after dark, in a narrow lane, when the Demon came behind her and struck her a violent blow on the back, thus occasioning a curve, which had existed from that time, and unless she made propitiatory offerings, she occasionally experienced repetitions of the same species of attack.

In 1861 a native female was brought to the Dispensary with incomplete paraplegia and severe pain across the loins, she only a month previously had been confined of a male child. After about a month's treatment in Hospital, a lumbar abscess presented itself, from which above a quart of matter was evacuated, power was gradually regained over the lower limbs, and she completely recovered.

Guinea Worm is not a Cochin disease, the soil being apparently one in which it will not live: the laterite strata of this part of the Western Coast seems to be free from this entozoon. In every instance admitted into the Dispensary, if enquiries are instituted, it is found that the patient at some period during the preceding year, had visited a distant locality in which guinea worm was endemic. On the other hand, sepoys coming from Madras to Quilon, and bringing this complaint with them, will invariably have lost it by the end of a year.

On March 25th, 1859, a Hindoo was admitted in Hospital, suffering from guinea worm. He had just arrived from a village on the further side of Coimbatore, and had been affected for about four months. He remained under treatment a little more than three months, during which period fifteen worms either came away or were removed. One from each of the following situations, the tip of the nose, the angle of the lower jaw on the right side, the right iliac

region and the right thigh : the remaining eleven from the two lower extremities.

Worms in the intestinal canal are common causes of admission. Only one case of tape worm has been observed for some years, and that is stated to have occurred in a Jew, so it may have been imported. It does not appear to have been remarked whether the variety was a Tænia Solium or a T. Lata.

The round worm, *Ascaris lumbricoidis,* is the most common species, and occasionally causes death from severe irritative fever. Santonine in small doses has been employed in thirteen instances, and in all with complete success.

The thread worm, *Ascaris vermicularis,* and the long thread worm, *Trichocephalus dispar,* are both frequently perceived. Santonine has proved ineffectual in expelling them.

Peenash, or worms in the nose [described in the *Indian Annals,* No. V., and the *Transactions of the Calcutta Medical and Physical Society,* Vol. IV.] are occasionally found in Cochin.

Tumours are very numerous, and mostly of the fatty variety. The most curious instance which has lately come under observation at the Dispensary, was that of a man with one hanging from his buttock, looking like a pudding tied up in a brown bag: a dog having mistaken it for something good, had fixed his teeth into it. These abnormal growths being easily cured by operation, and chloroform obviating pain, many persons come long distances to request their removal.

The fatal case of amputation of the forearm, for a tumour, was a most interesting instance of spina ventosa. The whole of the ulna had expanded into a very large bony cyst. A native doctor had by some means opened this cyst, and irritative fever had in consequence supervened.

Polypi of the nose are not uncommon: in one instance both nostrils were affected, and having spread backwards into the pharynx, considerable irritation was caused there. A cure was effected by first tying the pharyngeal part, and subsequently removing the nasal portion.

Polypus of the uterus is not frequent, still cases occasionally come under treatment, and are cured by using the ligature.

Cancers are not uncommon ; perhaps the most prevalent are those of the mucous membrane lining the inside of the

cheeks and covering the gums. It may be correctly described as epithelial cancer. Its consistence varies in different cases, and also in different portions of the disease in the same patient. Sometimes it bleeds on the slightest touch, at others it is not a very vascular growth. Cancer of the penis sometimes necessitates the removal of that organ.

Pica, or depraved appetite, is very common. Children of an early age may be seen eating dirt, stones, or any filth they can lay their hands on, and even many adults, especially females, are affected in the same manner. It is most frequently found in cases of dropsy and indigestion.

This disease, it is curious to observe, was so prevalent in the natives of Africa, as to have been denominated Cachexia Africana. It has been surmised to depend on glandular disease and dropsies, and both these classes of affections are common in Cochin.

Persons affected with pica will often turn away in loathing from good food, to pick up and swallow dirt and stones. In one case, a woman who was confined in a room, refused her rice, and gnawed the chunam of the walls. Emaciation becomes extreme, and unless the disease be speedily checked, death ensues, generally with dropsical symptoms.

Parturition and diseases of the female genital organs, excluding venereal affections, occasion some cases of great severity.

Most of the midwives of Cochin are Christians, but a few are Hindoos of the Barber caste. The Mahomedans [Mussulmen, Moplahs and Lubbays] have both male practitioners of medicine, and female midwives, whom they prefer to those of other castes; still they have no insuperable aversion to call in Hindoos. Neither the Mahomedans, the lower caste Hindoos, nor the native Christians have any strong objection to take their females in very difficult cases to the Dispensary. The reason probably being that none of these midwives ever operate upon living females, the Cæsarian section during life time being quite unknown. But after the mother's death should the fœtus be still in utero, a barber is called in to remove it. All castes and classes of the native community considering it most repulsive to bury a woman with the fœtus still in utero.

The midwives, as a whole, are pretty skilful. The cases which they appear to be unable to manage, are arm presentations, impaction of the head, and powerless labours.

When a woman has come to her full time, and the labour pains commence, she is kept walking about or standing. A strong cord is passed down from the roof, to which is attached a ball or piece of stick, and the woman is allowed to hold on. The room in which the confinement is to be conducted, is small and ill ventilated, and rendered still closer by the presence of numerous relatives and friends, as many of whom are allowed to crowd in, as its space will admit.

In some instances the midwife and only two or three other women remain in the patient's room, the others being in an adjoining apartment, and the men still farther off. The noise made would probably drive any European female nearly crazy.

Treatment is commenced by giving a dose of castor oil during labour, a little fluid is allowed for drink, generally consisting of pepper water and rice.

During labour certain charms, such as the following, are employed. A piece of a peacock's feather is tied round the right forearm, or the female holds an egg in her hand. If the pains are not very strong, an earthworm is procured, ground up in some vinegar, and applied as a liniment to the soles of the patient's feet, and also to the navel. Belief in the efficacy of this remedy is not confined to the natives; pounding rice in a mortar within hearing of the woman, is also thought of assistance in producing labour pains.

The midwife stations herself behind her patient, and continues stroking her head and coaxing her, making a noise something like that made by a bullock driver, when urging on stubborn bullocks. If labour be prolonged, oil is rubbed over the abdomen, and the patient is told to strain, whilst steady pressure is kept up from above downwards.

If the case be one of placenta previa, the midwife's hand is inserted up the vagina, and strong pressure is made upon the os, whilst externally tight bandages are passed round the patient's abdomen, and all available cloths are heaped on the unfortunate creature, and she may even be thankful if one or two of her female friends are not sitting on the top of this bundle; if not, they are occupied in pressing it down, as hard as they are able. The pulling and hauling the unfortunate infant undergoes, if it remain any length of time unborn within reach, is the same as elsewhere, with similar disastrous results. If all goes well, the patient is not in very bad hands; but if the contrary, she is greatly to be pitied.

After the child is born, more especially if assisted into the world, the female relatives and friends commence a terrible clamour, requesting the instant removal of the placenta.

The infant is immediately washed, generally in warm water, but sometimes in cold. An egg or some arrack is usually added by some castes of natives to the water: the Eurasians mix brandy with it, but Hindoos invariably use only common water.

The infant's troubles commence as soon as it is born, it is immediately dosed with castor oil, and for the first day is given China root, boiled with some jaggery and tender cocoa-nut water (a wet nurse is employed when necessary): it must have no cold water to drink until it is at least twelve days old.

The placenta is sometimes buried inside the house.

The mother is bathed in cold water on the day of her delivery, her cloth is kept bound tightly round her for several days.

Should the infant be attacked with convulsions, it is given garlic, yolk of egg, and margosa well mixed, the dose being about the size of a copper cash; there is also an external application of the same to the back of neck and extremities.

In the adjoining room to that in which the accouchement is occurring, are seated one or more "wise men," ready to draw the horoscope of the new born infant; these wise men are generally Brahmins, but this is not compulsory. A correct horoscope cannot be given if they are only informed of the time at which the child is fully born. There are two periods which must be accurately noted by the astrologer, viz., the discharge of the liquor amnii, and the completion of the birth—the mean of the two being the exact period required in calculating the child's horoscope. But it is also said to be correct, if the exact time, when the infant's head comes out of the vagina, be noted.

An account of the process of drawing a horoscope would be too long for insertion in this paper. Its effects upon health are very decidedly pernicious, even the most intelligent natives firmly believe in its truth, all arguments to the contrary being perfectly futile.

In 1854 a case of rupture of the uterus was admitted into hospital in a dying state: on the abdomen being opened, the fœtus was found to have a hydrocephalic head.

The most common admissions in cases of midwifery, are for

impaction of the head, arm presentations, and powerless labours.

In 1859 a very interesting case was admitted, the patient had been six days in labour, but the os was rigid, and fortunately pains almost entirely absent. Under the administration of tartar emetic internally, followed by the inhalation of chloroform, the os was dilated, and the fœtus removed: the case terminated satisfactorily.

Infanticide has much decreased of late years, but even now an infant is occasionally perceived floating in the Backwater, but it does not appear that these bodies are only thrown into the river(1) to destroy life; or in cases of concealed birth; for at the end of April 1861, the body of a child was brought to the Dispensary, which, on examination, was found never to have breathed; and it was subsequently discovered to have been born on the previous day—its mother being the wife of a Police peon, and no cause existing for suspecting that it was illegitimate.

In some parts around it is believed that monstrosities are merely devils incarnate, or else the incarnation of the spirit of some deceased human enemy, whose destruction must be immediately carried into effect.

Criminal abortion is probably very frequent, [the usual charge being Rs. 5 a case,] but such instances do not commonly come under notice. An ayah was admitted in 1859, with symptoms of typhoid fever, and expired five days after admission. The uterus was found enlarged, thickened, and mortified, and in one part a sloughy opening existed into the peritoneal cavity. To procure abortion she had inserted a piece of bamboo into the uterus, subsequently taking some native drugs to aid its effects.

In 1857 a female was admitted, who stated she was suffering from severe gonorrhœa. The symptoms became aggravated, and on examination with a speculum, a piece of thin bamboo was found passed up the vagina, one end of which

(1) It was lately discovered that the plan adopted by the Police, in burying the bodies of paupers, was to tie them up in a mat and simply deposit them on Gallow's Island, from whence [if undevoured by vultures or crabs] they were often floated off at high tide. The bodies of infants treated as above were probably only miniature representations of the Police plan, with this difference; instead of leaving corpses to be floated off the burial ground, these were sent adrift to be *floated on.*

It should be observed that since writing the above, the civil authorities, on a representation being made, immediately took steps to ensure burials being decently conducted.

had penetrated into the uterus. It was removed, and she did well.

Irregularities of menstruation are very frequent, and occasion numerous diseases and secondary affections.

Poisoning seems most commonly effected by Datura, but it is often questionable whether due to design or accident. It is a very common practice to rub the inside of chatties with datura juice, for the purpose of causing effervescence in the arrack, with which they are subsequently filled, thus increasing its intoxicating effects; consequently accidental poisoning frequently occurs, though most commonly at marriage ceremonies.

Congenital malformations are often found, as previously stated: if very monstrous, the infant is quietly made away with.

Hydrocephalus has been mentioned as causing rupture of the uterus in one case of parturition a few years since: two instances of this affection in young children have also been observed at the Dispensary during the last year.

Cases of *Spina Bifida* have not presented themselves, but the same congenital disease, in a newly born infant, occurred in the situation of the posterior fontanelle, and was brought in for treatment. The tumour was more than half the size of the head; soft, lobulated, and pulsating, pressure on it caused symptoms of pressure on the brain.

The exceeding frequency of congenital shortenings or absence of the ends of the fingers or toes, is very remarkable, especially in families with a leprous taint. This arrest in development may either be due to congenital deficiency of the vital powers derived from the parent, (perhaps caused by hereditary leprosy,) or else from a greater predisposition, in persons so affected, to leprosy; whichever theory is correct experience demonstrates that whenever such patients come, for treatment, a leprous taint should be suspected, if suffering from ulcers, they will heal very slowly, and leprosy, if not then present, will probably be found at some future date.

In the foregoing *Medical Topography of Cochin*, as it is, with the diseases caused by its low site and deficient sanitary arrangements, the unhappy state of morality in the surrounding country, and some reforms which have been either pointed out or hinted at, it is scarcely necessary to reassert, that my observations are not intended as reflections on any one in particular. Without money nothing can be

accomplished, and none is available here for sanitary improvements ; and until human nature be convinced that saving life is saving money, it is improbable much will be done unless disease touches the richer classes.

The sanitary condition of the place is much to be deplored, whilst the moral degradation of some classes reacts directly on their own, and indirectly on the general health.

Much has been done in these parts for the people as a whole, but a greater work is left to be done—a good deal of which might be effected did all join harmoniously.

It may be concluded from the foregoing—

I. That the moral state of the heathen (at least) is lamentable. The marriage tie amongst the majority being almost absent, and reformation loudly called for.

II. That the sanitary condition of the town of Cochin and its environs, partly owing to its low site, deficient drainage, (especially the disgusting practice of cess pools inside houses, or accumulating filth within compounds) and other causes, requires amendment.

III. That many of the elements causing disease and death, are removable.

IV. That were the *New Police* to be in a position to strictly carry out the *New Police Act*, an improved sanitary condition would no doubt soon be apparent.

V. That the *Municipal Act* should, *nolens volens*, be passed for Cochin, and strictly enforced *under proper Government supervision.*

There remains one important consideration which must have struck every observant traveller in Hindostan, namely, the miserable objects that meet his sight in every village. Tumours of all descriptions, persons blind from the effects of small-pox or cataract, very many of whom are amenable to cure by European Surgery ; but the sufferers, owing to poverty, religious scruples, and the opposition to their leaving their homes, are unable to reach the distant Civil Dispensary, and consequently die unaided and in misery, of remediable diseases.

Were there a *travelling Surgeon* in some of our larger districts, having from four to six fixed stations, widely separated, in each of which he had to pass from two to three months every year, his advent would be hailed as a boon by all. A vaccinator might be stationed at each of these places, and perhaps the Missionaries might be invited to erect a school and church under a native pastor.

From these fixed out stations, if necessary, cases might be despatched to the Zillah Civil Hospitals.

This course, exclusive of the immediate good to the suffering poor, would otherwise be interesting. The travelling Surgeon would be able to collect useful information as to the climate, topography, natural history, and productions of each place.

ART. III.—*Remarks upon Beriberi.* By EDWARD D'ARCY EVEZARD, Esq., Zillah Surgeon, Masulipatam.

ONE of the questions for the last competitive examination for the Indian Army Medical Service was, "Give the symptoms, causes, and treatment of Beriberi." What, thought I, on observing this, is the great bugbear of the profession in this country, second only to cholera in its terrible consequences, so much better known and understood in England as to form the subject of examination for a tyro? How could I, or indeed any other medical officer, have satisfactorily answered the question, when the term "Beriberi" has been handed down to us by Malcolmson and others, as a name for almost every fatal disease of debility? Paralysis of various kinds, reflex paraplegia, dropsy, anasarca, cachexia, and anæmic rheumatism, with various diseases of the heart and pericardium, have all at some time been included under the term, so that one feels rejoiced at its being left out in the nomenclature concocted by the Statistical Congress. Though I am writing from the grand stronghold of Beriberi (Masulipatam), I should be glad if any one could tell me what are the precise symptoms of the disease; what it is, and what it is not. In the fourth Number of this very Journal, page 303, Dr. Eyre described a jail disease occurring at Bellary, which was thought to be beriberi; but was decided not to be, on account of the absence of the peculiar gait, &c.

The disease from which the inmates of Masulipatam jail have been suffering for the last two years, and which I have followed my predecessors in calling beriberi, has presented much the same symptoms, and has resembled the disease at Bellary in the absence of the so called paralytic symptoms. It has, too, presented such peculiarities as to induce the Editors of this Journal to think that a description of it, with

the views I have deduced from its observation, may be not uninteresting to their readers. I willingly comply with the request, not with a view to attempt to teach our somewhat unteachable profession to answer the question on beriberi, but in the spirit which I know is possessed by many of my professional brethren, of showing to one another the light in which certain facts or symptoms appear to themselves. *Λαμπάδια ἔχοντες διαδώσουσιν αλληλοις.*" It is in this light, and not in a didactic one, that I would wish the following remarks to be received.

But, first, it will be necessary for me to describe faithfully the disease, or rather the series of symptoms from which the inmates of the jail here have been suffering, together with the treatment I adopted on taking charge of the jail in August 1859. I observed that there were several patients in hospital with beriberi, while about one-third of the prisoners, both male and female, were suffering from slight œdema of the lower extremities, with occasional palpitations of the heart, costiveness, scanty urine, blanched conjunctivæ, and flabby and pale tongues, whiteness under the nails, &c. They generally stated that they felt well; but would occasionally own to a slight feeling of numbness, and coldness of the extremities. These symptoms were frequently relieved under appropriate treatment. Often, however, after a close night with either a fog or a shower of rain, a patient would come into hospital in the morning with a scared aspect, sighing breathing, violent palpitation of the heart, sometimes with a diffused impulse, occasionally with pain in the præcordial region, and a variable, fluttering pulse. When told to put out his tongue, he would loll it out like a spent dog, and appear unable to withdraw it. It would be broad, flabby, white, and glazed, having the appearance as if there were no papillæ on its surface. The patient would also suffer from œdema, accompanied by numbness of the lower extremities, often of the upper limbs and face, sometimes of the whole body; occasionally from puffiness of the stomach, and eructations and other dyspeptic symptoms; and, generally, from costiveness. His urine would be scanty, high colored, of an acid reaction when voided, shewing when of sufficient quantity, a Sp. gr. of from 1025 to 1040, and containing an excess of urea.

The œdema was present in all the cases of this kind but two. I observed that three of the patients—one of whom

was only eighteen years of age—were *prematurely grey,* two others had each a withered limb, and upon different parts of the bodies of some others were observed both leucopathic and melasmic marks; but I did not pay much attention to this at the time.

The following brief cases will, I think, show the progress the disease took during treatment.

CASE 1.—BERIBERI.

Kistnadoss, age 24, Gentoo prisoner; sentence 2 years; in jail 8 months.

September 2nd, 1859.—This man, a native of Vellore, was admitted into the Jail Hospital with swelling over the tibiæ, and numbness in the palms and soles; pulse quick, compressible, and moderately full; urine scanty and high colored; tongue flabby, and slightly blanched; bowels costive; palpitation of the heart; sounds heard all over the chest.

℞. Pulv. Jalapæ Co. ʒ i.
Statim.
℞. Gin ʒ ss.
Potass. Acet. grs. v.
Aqua. ʒ iij.
ter in die repetanda.
Diet—Spoon.
Bread 1 lb.
Mutton broth 1 ℔.
Milk 2 pints.

3rd.—Bowels moved freely by the medicine, he voided his urine freely 5 or 6 times; the œdema has nearly subsided; patient states that he feels well; but complains still of numbness.

To be kept as an out-patient.

14th.—Re-admitted with the former symptoms of Beriberi.

Repeat as above.

16th.—Great difficulty of breathing. To have an enema of castor oil; sinapism over the heart.

17th.—All the symptoms increasing. Emp. Lyttæ, over the cardiac region.

Repeat the Gin mixture till the pulse is raised.

Vespere.—He got a little better after the blister and medicines; but became alarmed—difficulty of breathing increased.

18th.—Died at 7½ in the morning.

Post-mortem.—No remarkable appearance in any of the organs except the heart, which had suffered from hypertrophy with dilatation.

Case 2.—Beriberi.

Bala Naik, age 30, Oria caste, prisoner ; sentence 10 years ; native of Goomsoor; in jail 2 years and 3 months.

September 2nd, 1859, admitted with œdema over the tibiæ, and slight numbness all over his body ; bowels regular ; urine scanty, high colored and acid ; tongue *very* flabby and blanched ; sighing breathing ; heart sounds normal, but extensive puffiness in the epigastric region ; pulse weak, small, and 90 ; respirations 35 in a minute.

℞. Gin ℥ ss.
Potass. Acet. grs. x.
Aquæ ad. ℥ iii.
Ter in die capienda.
Diet—Bread 1 lb.
Mutton 1 lb. made into broth.
Milk 2 pints.

3*rd*.—Passed his urine freely 5 times,—the quantity could not be ascertained ; bowels moved twice ; the whole body is now puffy and the patient complains of pain at the pit of the stomach ; he could not be made to drink plenty of water.

Repeat the remedies.

5*th*.—Altogether better.

Repeat.

7*th*.—Tongue clean ; pulse good ; no swelling ; urine still high coloured, and acid.

Repeat.

10*th*.—Complains of difficulty of breathing.

Repeat.

12*th*.—No swelling, but tongue very white ; he never drinks water unless when I am standing by, and then only a few drops ; states that water makes him sick.

Repeat.

13*th*.—Vomiting at every tea spoonful of medicine.

Acidi. Hydrocyanic Dil. ♏ i.
Aquæ. ℥ i.
ter die ; given in milk.

14*th*.—Pain in the right side ; no swelling ; liver seems enlarged. Vomiting continues.

Blister over the region of the liver.

15*th*.—Still vomiting ; pulse small and thready ; died at 10 P. M.

16*th*.—*Post-mortem*—Liver somewhat hard and congested ; lungs frothy and covered with emphysematous spots ; heart, eccentric hypertrophy ; weighed 12½ oz. ; kidneys small and contracted ; the stomach was full of an acid liquid.

CASE 3.—BERIBERI.

Bhemah, age 30, caste Brinjaree; sentence 15 years; native of Nizam's territory; in jail 6 years.

September 2nd, 1859, admitted with general swelling and numbness over his tibiæ, and in the arms, and weakness in his legs; urine scanty, high colored and having an acid reaction; bowels scantily open; tongue white and flabby; pulse weak and quick.

℞. Gin. ℥ ss.
Potass. Acet. grs. v.
Aquæ ℥ iv. ter in die.
Diet—Full.

3rd.—Passed his urine somewhat freely; bowels open once; body still very puffy.

Repeat.

5th.—Puffiness decreased; tongue red, but flabby.

Repeat.

7th.—Altogether better; walks easily; no difficulty of breathing, and no swelling; tongue slightly red, but flabby; pulse weak, but full; urine free, and of proper color.

Repeat.

9th.—The same.

Repeat.

11th.—General swelling all over the body; to drink plenty of water.

Repeat.

12th.—No swelling; discharged well.

CASE 4.—BERIBERI.

Bucca Adavy Gaudoo, convicted prisoner; length of confinement 8 years; native of Masulipatam.

November 21st, 1859, admitted with œdema of both legs; tongue pale; pulse quick and weak.

℞. Pulv. Jalapæ Co. ℥ i. Stat.
Gin ℥ ss.
Potass. Acet. grs. v.
Aquæ ℥ i.—ter die.

22nd.—Made urine freely; very weak; skin full, and tense.

Repeat.
Diet—Full.

23rd.—Nearly well; urine free; bowels a little costive.

℞. Pulv. Jalapæ Co. ℥ i. Stat.

Repeat the other medicines.

24th.—The same. To be sent to the sea shore for fresh air daily for two days.

CASE 5.—BERIBERI.

S. Tantiah, convicted prisoner; length of confinement 7 years; native of Masulipatam.

November 22nd, 1859, admitted with very slight œdema over the tibiæ, puffiness of the face, and of the skin over the chest and abdomen—great tensity just below the ensiform cartilage, with pain on pressure. Pulse small, weak, and 84; heart sounds heard to an unusual extent; second sound not sufficiently sharp, and followed by a bellows sound (slight); breath escapes with a whirring sound; respirations 35 in a minute.

Enema of Turpentine ℥ ss.
Ol. Ricini ℥ iii.
Conjee water to ½ a pint.
℞. Gin. ℥ i.
Potass. Acet. grs. v.
Aquæ. ℥ iii, three times a day.
Diet—Spoon.
Milk 1 pint.
Bread 1 ℔.

11½ P. M.—Pulse very weak, scarcely perceptible; the enema acted freely but did not depress him; he has been gradually sinking since sunset.

℞. Ætheris Sulph. ♏ xx.
Spt. Ætheris Nitric 3 ss.
Aquæ ℥ iss.
Ft. Haustus.

No better after the draught, and as the heart's action is somewhat irregular, I do not like to stimulate any further.

Gentle friction.

Mustard poultices to the pit of the stomach.

23*rd*.—Feels altogether better, but is puffy and sends out his breath with a whiff; extremities cold; acid eructations.

To be placed out in the open air on his cot. Sinapisms to feet.

Expired about 10½ A. M.

No *post-mortem* examination, as the friends are anxious to take the body home.

CASE 6.—BERIBERI.

Masarasspoo Chinthadoo, convicted prisoner; length of confinement 1 year and 2 months; native of Musilipatam.

January 27th, 1860, admitted with very slight œdema over the tibiæ, puffiness in the chest and face, particularly just under the orbits; palpitation of the heart; tongue white, flabby, and glazed;

bowels regular ; urine said to be as usual, Sp. gr. 1018 ; a little mucus passed with it.

℞. Pulv. Jalapæ Co. ʒ i. Stat.
Potass. Acet. grs. v.
Gin ʒ i.
Aquæ ʒ iii. ter die.
Diet—Spoon.
Milk 1 pint.
Mutton broth 1 lb.

28*th.*—Altogether better ; he was well purged ; œdema has vanished ; much less puffiness about the chest.

Continue, with half the quantity of Gin.

29*th.*—Well ; to be taken down to the sea.

31*st.*—Still weak.

℞. Tr. Ferri. ♏ v.
Aquæ ʒ i, ter die.

February 2*nd.*—Œdema returning ; tongue glazed.

Repeat.

4*th.*—The same.

Repeat 1 dose daily of the Diuretic mixture. Repeat the Iron mixture.

11*th.*—Duty.

CASE 7.—BERIBERI.

Goura Ramaswamy, convicted prisoner ; length of confinement 8 months ; native of Masulipatam.

July 7th, 1860, admitted complaining of palpitation of the heart and slight œdema of the lower extremities ; tongue flabby, but red at the edges ; urine scanty ; bowels regular ; his chest is somewhat misshapen, flattened at the sides ; he is pigeon breasted ; the heart sounds are heard nearly all over the chest, and the impulse can be *seen* at a distance.

℞. Pulv. Jalapæ Co. ℈ ii. (before admission.)
Tr. Digitalis ♏ v.
Mist. Camph. ʒ i, for one dose.
Repeat three times a day.

To drink 2 quarts of water an hour after dinner.

10*th.*—Altogether better.

℞. Tr. Digitalis ♏ v.
Potass. Acet. grs. v.
Mist. Camph. ʒ iss.

For one dose, repeat 3 times a day. Leave off the other mixture.

Diet—Spoon.
Bread 8 oz.
Mutton broth 1 pint for dinner.
Milk 1 pint.

Repeat the mixture with Gin, one measure in the day.

12*th.*—Nearly well, discharged for indoor labour for to-morrow morning.

Case 8.—Beriberi.

Nunthum Reddy, convicted prisoner; length of confinement 10 years; Æt. 36, native of Masulipatam.

July, 1860, admitted with an obstruction in the external jugular vein of the left side, about 1½ inches above the clavicle. A very strong venous murmur heard for about 2½ inches all round; heart palpitating too violently to enable one to distinguish the sounds clearly, bellows sound and murmur heard at a point 2 inches on the inner side of the nipple and about 1½ inches above; diffused impulse felt all over the left side of the chest; the subclavian arteries can be seen to beat violently on either side; there is a slight venous murmur heard also over the right jugular vein. Face puffy; pulse small and thready, it is impossible to distinguish the number of beats; tongue flabby and slightly blanched; œdema of the lower extremeties slight, and extending up as far as the tuberosities of the tibiæ. The stomach is puffy; the patient has not eaten his rice yet; he has never been in hospital before, but has occasionally received a purgative. Bowels slightly costive; urine scanty and high coloured; the patient's hair is grey.

The left side of the neck to be well fomented with hot sand.

℞. Pulv. Jalapæ Co. ʒ i. Stat.

To drink a large quantity of water.

℞. Ferri Citratis et Quinæ grs. iv.
Tr. Digitalis ♏ v.
Aquæ ʒ iss.

For one dose three times a day, to be commenced as soon as the bowels and urine are free.

Diet—Spoon.
Mutton broth 1½ pints.
Bread 8 oz.
Spice powder ʒ ss.

31*st.*—Feels easier, though violent pulsation can be seen over the external jugular vein, which has a small lump in it, which seems to have increased since yesterday, and is now about the size of a hazelnut. Palpitation less; no bellows sound in the cardiac region; complains that his diet is not sufficient; pulse 120.

Repeat.

August 1*st.*—Swelling in the vein less; puffiness in the face less; œdema less.

Repeat.

2*nd.*—Nearly well; the swelling in the neck hardly perceptible; palpitation on exertion; bowels open three times yesterday; urine natural and of light colour.

Continue the Ferri Citratis Quinæ with Tr. Digitalis, and leave off the other medicines.

Repeat Fotus.

4*th.*—Urine high coloured; bowels moved twice in the night; slight puffiness in the stomach; to take convalescent exercise and go down to the sea shore every day and bathe.

Repeat.

6*th.*—Nearly well, stomach a little puffy with wind; to be discharged for to-morrow morning.

Omit medicines. Full diet with meat.

CASE 9.—BERIBERI.

Yarnkola Lutchegadoo, convicted prisoner; length of confinement 7 years; age 30; native of Masulipatam.

July 31*st*, 1860, admitted with œdema over the tibiæ, extending up as far as the knee joint. Palpitation of the heart not very violent, but heard all over the left chest; slight bruit in the veins of the neck; face slightly puffed; tongue flabby and blanched; pulse slow and full, 78; bowels open twice a day; urine natural.

℞. Pulv. Jalapæ Co. ʒ i. Stat.
Potass. Acet. grs. v.
Gin. ʒ i.
Aquæ. Oss.
ter die repetanda.

Diet—Spoon.
Milk 1 pint.
Mutton broth 1 pint.
Bread 8 oz.
Spice powder ʒ ss.

Fotus, to neck and legs, of hot sand.

August 2*nd.*—Still œdema, and the tongue white; urine said to be natural; bowels open twice.

Repeat.

4*th.*—Nearly well; slight weakness in the lower extremities; to take convalescent exercise on the sea shore.

℞. Tr. Ferri. ♏ xx.
Tr. Hyoscyami. ♏ v.
Infus. Quassia ʒ ss.
ter die.
Leave off Diuretic.

6*th.*—Nearly well; tongue however still flabby and white.

℞. Ferri Sulph. gr. ¾.
Quinæ. Disulph. grs. ii.
Aquæ ℥ iss.
For one dose, repeat three times a day.
Leave off extra diet.
Full diet, with meat.

7*th.*—Discharged cured.

Case 10.—Beriberi.

Moda Vencataswamy, Æt. 35 (murderer); convicted prisoner; sentenced for life; native of Masulipatam.

October 23*rd*, 1860, admitted with general swelling; white flabby tongue; palpitation and diffuse impulse of the heart; pulse small and quick; difficulty of breathing; urine scanty and high coloured; bowels costive; patient altogether anæmic, and has on two former occasions been admitted with slight œdema. There was a heavy shower of rain last night, and three patients were admitted this morning, all of whom previously appeared in good health. This patient has been a drunkard and addicted to gunjah.

℞ Potass. Acet. gr. x.
Gin. ℥ iss.
Aquæ ℥ iii.
Repeat three times a day.
Pulv. Jalapæ Co. ℥ i. Stat.
Empl. Lyttæ applied over the region of the heart.
Spoon diet.

24*th.*—Slightly relieved—bowels moved four times, urine about 6 oz. during the night, still high coloured; general swelling much the same; conjunctivæ still blanched; pain in the cardiac region; venous regurgitation diagnosed; liver enlarged and hard.

Cont. Gin.
Pot. Chloras grs. v.
Tr. Ferri Muri. ♏ xv.
Aquæ ℥ ii.
Repeat twice a day.
Dress the blister.
Mutton broth 1 pint.
Bread 8 oz.
Milk 1 pint.

25*th.*—Slightly relieved; bowels twice moved; urine 8 oz. during the night.

Repeat.

November 12*th.*—Discharged well.

CASE 11.—HYPERTROPHIA CORDIS (BERIBERI.)

P. Venkatasawmy, age 34, native of Masulipatam, sepoy; sentenced for 6 months.

June 11*th*, 1861, admitted complaining of pain in the middle of the sternum, on pressure, and palpitation of the heart. Hearts sounds heard all over the chest, the dull space in the præcordial region increased to about twice its natural size; tongue flabby and white; pulse weak and quick, 120; bowels regular.

℞. Tr. Digitalis ♏ x.
Æther. Nitrici. ♏. xx.
Mist. Camph. ℥ iss.
For one dose repeat three times a day.
Reduced diet.

14*th*.—Weak; palpitation less.
Spoon diet.
Bread 8 oz.
Mutton broth 1 pint.
℞ Ferri Citratis et Quinæ grs. ii.
Fiat Pil. ter die repetanda.

19*th*.—Discharged for indoor labour; to continue the iron pills.

PATHOLOGY, AND RATIONALE OF THE TREATMENT.—It will surely, I think, be admitted on all hands that the majority, at least, of the symptoms described above are those of anæmia. To what other cause can we attribute the debility, clod extremities, palpitations, and dyspnœa on exertion; frequent, small, and quick pulse, the bruit occasionally heard in the neck, the scanty urine, torpid bowels, and the deadly pallor of the substance of the tongue? But, it will be said, the tongue is not always white in beriberi. In every case where I have found it not to be so, I have discovered that the patient had been furiously scraping it, in order I suppose, to produce an artificial taste—for a convict will eat all his food, although he have to complain that it lies so heavily on his weak stomach, and that he can't digest it. This morning, on inspecting the prisoners, I found that notwithstanding frequent orders on the subject, all their tongues were red and had been scraped, one or two with large pieces of epithelium torn off, and yet I had to send two men to be dosed with Iron on account of pallor in other parts. It is, I know difficult, or at least, troublesome, to see through a dark skin or a conjunctiva full of pigment, but still I have been able to detect a deficiency in the red

corpuscules *somewhere,* in every case I have recorded as beriberi for the last two years.

To the same cause, namely, that of a profound and abiding anæmia, I would ascribe the sensation of numbness, which is owing, no doubt, to want of a proper supply of blood to the capillary vessels of the tactile papillæ, more particularly of the soles and palms on account of their large size. It is common enough, I believe, after puerperal flooding of great extent. I generally find it a symptom of anæmia in patients at the Dispensary, and often accompanied by œdema or at least the other symptoms which, collectively, are called beriberi. Friction, with stimulating liniments, removes it *temporarily,* I suppose by producing an evanescent congestion of the capillary vessels. The same thing happens if one pinches the patient's skin, he feels it acutely, but not *immediately.* It would appear that some time was necessary for the arrival of the blood to the spot after the pinch, before perfect sensation could be experienced, and this I imagine would not be the case were the numbness referable, as some have supposed, to partial paralysis—the result of some inflammatory action and effusion going on in the membranes or substance of the spinal cord.

I have found that stimulants or food producing acid eructation, or dyspeptic symptoms, turn the numbness into a burning or pricking sensation, particularly when in the palms and soles, and the numbness seems to be considerably influenced by position. But why should numbness be a more common symptom of mere anæmia in this country than in Europe? The recent experiments of Dr. Brown Séquard have proved that the lower the temperature, the longer sensibility persists in parts deprived of circulation. May not the converse be the case in a high temperature? And may not the increased pressure that a naked Hindoo exercises on his skin when lying on a hard substance, also in some measure account for it?*

With regard to the œdema, every one who has practised in this country, must have noticed the greater tendency of almost every disease, both medical and surgical, to result in serous effusion in Europeans who have been long resident, as well as in natives. I should say that this result was still more frequent here (Masulipatam), and even dropsy, with

* The habits of the natives of India are very similar in this respect throughout the country, yet the disease known as beriberi is only met with in a very limited geographical range.—Ed. *M. Q. J.*

albuminous urine, which is said, I believe, to be rare in other parts of India, is sufficiently common amongst the Telugoos. I have seen here both ascites and general dropsy in children and infants at the breast. I have a patient now, a Mussulman boy of 9 years, suffering from ascites and anasarca, the origin of which I cannot discover. Be this as it may, œdema is frequently, though not always, one of the latest symptoms of anæmia outside the jail. This I take to be owing partly to the constitution of the Telugoo, and partly to the condition to which the convicts particularly have been exposed, to be described hereafter. I used to think that they brought on œdema of the lower extremities by dabbling in the filthy jail tank; and I interdicted that amusement. I also thought that the habit of squatting when at rest, though constantly practised by healthy natives, might, in anæmic ones, tend to produce œdema of the lower extremities (the most common), and by increased pressure, numbness also; and taking into consideration the important part that muscular contraction plays in assisting the flow of blood in the veins, I have had patients dragged from their squatting posture and led up and down for a quarter of an hour or so and then made to lie down, with great benefit.

After a little exercise of this sort, they were generally able to walk a short distance by themselves. The heart, no doubt, partakes of the general debility, it is flabby, and the venous circulation becomes retarded. Soon, perhaps, it dilates, and one hears a temporary bellows sound. After several recoveries and attacks (and almost all who died had had previous attacks) the heart becomes thickened also, and hence we have the *post-mortem* appearance of either a large and flabby heart, or of one eccentrically hypertrophied. In short, I am inclined to regard the symptoms above enumerated as those of anæmia combined with the cachectic dropsy of Andral—a condition allied to that of chlorosis in the female.

I would in corroboration, especially allude to case No. 8, as demonstrating an accident which sometimes occurs in these conditions, namely, the obstruction of a vein and consequent œdema of the parts from which it receives blood. A case of this kind occurring in a chlorotic female was made the subject of a clinical lecture by Dr. Brinton, and reported, if I remember rightly, about a year ago in the "Lancet." All this may seem very trite, but I think one is too

apt to expect diseases to produce precisely the same symptoms in a native constitution as they would in a European; and it is only by analysing and ascertaining, if possible, what each symptom is really worth, that one is led back to regard diseases once thought to be peculiarly Indian as already universally familiar. As an instance of this, I may mention the Aden ulcer which was found at last by Dr. Craig of the Bombay Establishment to be simply Hospital gangrene.

With regard to the disturbances in the deposit of pigment, which were also mentioned in Dr. Eyre's report on the Bellary Jail, those learned in these matters tell us that they are frequent in anæmia, rheumatism, and gout, and I suppose, in most blood diseases. In one or two cases, when I noticed these changes in the *post-mortem* room, I carefully examined the supra-renal capsules; but without ascertaining any fact than that they appeared healthy.

Hitherto I have more particularly alluded to the phenomena of what may be called Chronic Beriberi; but occasionally the symptoms become rapidly aggravated as above observed, after a wet, or a close and foggy night. The tongue in these cases has often a redder appearance particularly at the edges, and sometimes resembles the tongue of hectic fever. Amongst a few of the stronger of the patients the symptoms, particularly the sediment in the urine, could not be distinguished (by myself at least) from those of rheumatic fever, there was little or no œdema, and these generally recovered. I entered some of the cases as Rheumatism. Here is an account of the *post-mortem* examination of one who had suffered several times from beriberi, but had recovered under the use of stimulants and tonics. I ought to mention, it was taken by an old and experienced Dresser, owing to my unavoidable absence.

Post-mortem of Thanta Veerappah; Beriberi. Considerable adhesions of the *pleuræ* on both sides; pericardium contained an oz. of fluid, the heart was much enlarged, and weighed 16½ oz.; the left auricle much dilated; the root of the aorta ossified; a fatty deposit near the semilunar valves, there was also some at the origin of the pulmonary artery. The chordæ tendinæ of the left ventricle much thickened. The whole of the cavities contained dark blood. The liver and spleen were softer than usual. On the surface of the left kidney were several cysts containing fluid, and there was some degree of fatty degeneration in both kidneys.

This is of course an extreme case, natives do not generally

outlive even slight disease in the heart; but it shows, I think, that mischief is set up similar, if not identical with, that of rheumatic carditis. It was seldom indeed that any trace of endo-carditis was seen, and but little of the results of inflammation in the *pericardium*, where the mischief would seem to commence; but still more than sufficient to account for a fatal result to natives, whose souls and bodies seem so loosely knit together. Often a stomach was found filled with acid fluid, sometimes it was tympanitic, and no doubt had, by pressure on the diaphragm and heart, greatly assisted in bringing about a fatal result.

I may here mention a curious circumstance. When the patients were near death the dyspnœa was often very distressing, and in order to palliate it, I had two patients, who appeared to be dying, placed out in the open air with their chests propped up. One of these recovered, the other made violent efforts to breathe while counter-irritants were applied to his extremities. After a violent spasm, during which his jugular veins appeared about to burst, his features suddenly relaxed, he was motionless, and the bystanders said, "He is dead sir." He, however, as suddenly revived, spoke to me and drank a little milk, and then sank off again. The *post-mortem* examination made shortly afterwards, revealed the cause—his violent efforts to breathe had produced both vesicular and interlobular emphysema of the lungs, which were bloodless. There was the usual hypertrophy of the heart.

The size of the heart, of course, varied much in different cases. In one, a youth of about 13 years of age, it weighed 11 oz., while there was about 12 oz. of fluid in the pericardium. In a patient who had atrophy of one lower limb (of some years' standing) and œdema of the other, and who suffered also from uncontrollable vomiting, and died by asthenia, the ventricles were gorged with blood, the pericardium was thickened, and the heart somewhat larger than usual, and with thickened walls of the right ventricle. The right lung was much congested. In another case the heart was flabby, and weighed more than a pound. The following may perhaps be taken as a type of the *post-mortem* appearances.

Post-mortem examination of Veragoo (Case of Beriberi). Lungs *slightly* congested. An unusual deposit of fat about the heart and roughness of the pericardium, which contained a large quantity of reddish serum. The heart was

hypertrophied, all its cavities engorged with black blood, it weighed (when empty) 15 oz.

In several of the earlier cases I observed on *post-mortem* examination a large and flabby kidney, in others a small and contracted one; these, however, were not constant results, and I think, that they must often have been owing to too great a persistance in the use of powerful diuretics. I am led to believe this, from the fact that the patients had taken large quantities of diuretics in previous attacks, while, as I afterwards found, they refused to drink water, with the obstinacy, I believe, peculiar to Telugoos, and horses who can be brought to water but cannot be made to drink. They had the notion that there was already too much water in their systems. At last I prevailed upon a Mussulman, one of the patients already in hospital, on my taking charge, to drink a large draught of water regularly, an hour after his meals; he found benefit from this, and lectured the rest upon the happy result; but still I generally found it necessary to stand over the patients whilst drinking water, or to desire my Dresser to do so.

I had been always cautious in my choice of diuretics, owing to a remark entered in the historical register by a hand that unhappily has ceased to practise the healing or indeed any art, to the effect that powerful stimulant diuretics were injurious; but still I had been giving Acetate of Potash, often in considerable doses, whilst the patients were preventing its action by abstaining from water. All this I think shows two things—the importance of medical officers entering remarks to show the rocks upon which they split, and the too great readiness with which one naturally seeks to crush the most prominent, and, perhaps, in this case, conservative symptom; for it appeared to me, and I think the same remark has been made by others, that those patients who suffered most from œdema were, on the whole, they who most recovered. On several occasions I carefully examined the urine under a Powell's microscope; but those who have examined urine in this country must know how difficult it is to get people to preserve it free from extraneous matter, and on one occasion, when I had detected oil globules, I found their appearance had resulted from accidental contact with a greasy substance after the urine had been voided.

Above I have intended to show, I know not whether clearly or otherwise, that beriberi, or at least the disease from which the convicts have been suffering, appears to me

to be anæmia, combined occasionally with cachexia, and that in what are called acute cases, the patient in this state and with, perhaps, an already hypertrophied heart catches cold, and is attacked with rheumatismal pericarditis. The scared aspect, and fear of sudden death, I consider to be peculiarly characteristic of this. Several died of alarm at the death of others. One man told me that a sort of Brahmin parca had appeared to him and told him that they would cut *his* thread of life next. He was saved by a ruse I adopted. I have never, as I have said, met with any symptoms combined with those I have mentioned referable to lesion, or injury, or pressure on the spinal marrow either here or during five years I spent in Burmah. I have been especially careful in looking for such symptoms, the patients of course are frequently unable to stand from fright, weakness, and the weight of their chains—nay, they sometimes walk astraddle in consequence of their gyves, but they have perfect co-ordinating power over their limbs. On one occasion a patient came for admission, and threw himself at my feet declaring that he had no power in his legs. I told him that I could see from his face that he was ill enough and should admit him, but I thought that he could walk if he tried. After some persuasion he was raised to his feet, and walked without assistance, straight up to me from one end of the verandah to the other. This man was in, what I considered, the worst stage, indeed he died the next day, and I did not think it necessary to try any more in this manner; I had satisfied myself, as I hope I may have satisfied any who may think it worth while to read this, that there was no paralysis.

I do not of course pretend to suppose that paralytic symptoms do not occur when many medical officers appear to have observed them, but they have not occurred in my practice. I have frequently seen loss of power in the lower extremities, twitchings of the muscles, &c., the result of fever, diarrhœa and other unknown debilitating causes. I have seen these combined with œdema, but then there has been also wasting of the muscles and albuminous urine. Fever is not at all common in this jail, nor is diarrhœa. I need scarcely mention perhaps that many of these symptoms, particularly the state of the heart and pulse, may and are simulated in sepoys by the use of intoxicating drugs and the abuse of tobacco. Should I ever have to treat a case of beriberi accompanied with paralytic symptoms, I should

expect to find much benefit from the use of Ergot of Rye, which I have found very beneficial in the kinds of paralysis just mentioned.

Causes.—These naturally divide themselves into those producing the anæmia, and those producing the inflammation of the pericardium. Anæmia appears to be almost the normal state of about a third of the population here, particularly among the high castes. The causes of the anæmia are of course obscure, but it appears to be partly due to the constitution of the Telugoo, and partly to the eliminating power of the drinking water which contains so much of the chlorides, and no iron. The natives are well aware of the effects of the brackish water which the majority of them are obliged to drink, at least, at the end of the dry season, when this disease is most prevalent; and when they find themselves suffering from anæmia they procure water from Goodoor,* or if they cannot afford that, they buy water which is drawn from some wells near the gate of my compound and carried about the town for sale. If this does nor cure them, perhaps they take some "Treak Farook," which contains Iron, Stimulants, and Rhubarb, or perhaps, as this is very dear and generally adulterated, they come to the Dispensary and pull down their lower eyelids to show the conjunctivæ, quite as if they were used to it. That the primary symptoms are owing to a deficiency of the red corpuscles, would also appear from the fact observed by Malcolmson that the Treak Farook, or Iron and Stimulants, relieved them without affecting the cardiac symptoms, (page 306, Case 50). From the analysis of Malcolmson, one would be led to believe that the water was very pure at Masulipatam, such however is not the case; a friend tells me that, in the dry weather, he finds after bathing in the water from a well in his compound, that his hair becomes quite sticky from some saline matter, which he thinks is not salt, it kills the vegetables when they are watered with it. The wells near my gate owe their efficacy to a small portion of iron contained in the water, but I have not examined the water, as the wells are strictly guarded by the caste people. A well in my compound is considered to produce the best water in the place, and it probably has the same composition as the water from outside. I have just been examining it again, and although there has been a good deal of rain lately, I find abundance of the chlorides, lime, magnesia, a trace of

* A village distant about six miles due west of Masulipatam.—Ed. *M. Q. J.*

alumina, and iron in the shape of a carbonate. Of late years there has been much less rain; so probably the wells were purer at the time Malcolmson wrote. It would be a great advantage if a quantitative analysis were taken of the water during the dry season.

Although the anæmia is very obstinate, still it is seldom, if ever, that patients outside the jail become attacked with the pericarditis; and the reason appears to me to be, that they avoid all sources of cold and damp, and consider it to be death to lie on the cold chunam or ground. The poorest man lies upon a charpoy.

Let us see now what is the case inside the jail. Here the men although they have just sufficient food, they have scarcely variety enough; and certainly not sufficient to store up for fat and warmth, and none of those luxuries which are supposed to check waste, as tea, coffee, tobacco, betel, &c. I do not say that men imprisoned for perhaps the most dreadful crimes, ought to be supplied with these luxuries, but, at least, that the place of these should be supplied by a sufficiency of clothing. Such, however, is the economy of the present jail regimé, that many of the prisoners have only one cloth. He must be a poor man indeed outside the jail who has not a cloth to change when he bathes.

Some little improvement has been introduced in the food, but the present high prices of bazaar articles is so great as to make it impossible to procure the necessary variety with the regulated sum. I am however of opinion that the persistance of the anæmic state is more due to the damp and foul atmosphere of the unventilated cells, than to the food. I need not enter further into a description of the ventilation and the causes of the effluvia, as they have been so often mentioned before. The solid excretions are, by a recent order, removed to some distance outside the jail and buried.

But as to the damp, the soil here is for the most part salt. The tank in the jail compound is salt, and its recession leaves a wide margin of saline substance in the soil which reattracts moisture, like a cloth that has been wetted with sea water, and causes damp. The chunam and mud of the jail walls, and the walls of the cells too, are salt, and in the morning are seen dripping with moisture even in the dry season.

Some slight improvement has been made in the drainage of the compound, and a large volume of water from the tank has been drawn off into a new drainage nullah

which was made at my request,—the water can only now rise to a certain level, and although I despair of this pernicious tank ever being filled up, at the rate it is now attempted, still a marked benefit has resulted from what has already been done. It is owing, I cannot help thinking, partly to this, and partly to the simple experiment of introducing a piece of iron, allowed to corrode into each chatty of water used by the prisoners for drinking and cooking, that although we have already had very heavy rain and even fogs, there has not yet occurred a single case of beriberi this season.

Two or three jail peons were attacked with beriberi some time ago, and they attributed it to lying over night in the guard shed at the margin of this filthy tank. I mention this in corroboration of my views, because I have met with some ridicule from those who supposed that I attributed the malinfluence of the tank to malaria. I did not intend to accuse it of malaria, but damp, though there was, at one time, a very foul effluvia arising from it, which certainly might have helped to keep up the anæmic state, as foul air is known to do. A jail peon came into hospital this morning with muscular rheumatism of the lower extremities, after having been on guard at this spot; he has no œdema, but then he is decidedly not anæmic. There is a brackish tank of this kind near the jail and within a few feet of the Artillery Barracks, which were abandoned on account of the unhealthiness of the troops, I believe, some years ago. There is also a large brackish tank within a few feet of the Regimental Hospital, where patients who had been previously debilitated with fever, as I understand, have been suffering much from beriberi lately.

While writing this, however, two patients who have had beriberi before, have been again attacked with some of the symptoms, but in only a slight degree, and on inspecting the cells, I find them flooded with water, which has come through the roof, so that the convicts have been lying on an old brick and chunam floor on a level with the ground, full of holes and flooded with water all night.

In short, the way in which I conceive a convict to come at an attack of pericarditis or acute beriberi, or whatever the reader may be pleased to call it, is this:—He arrives from work perhaps perspiring; it is wet, there is no working shed for shelter, and he must be locked up in his cell or, in any case, he is locked up to keep him out of mischief

from six in the evening to six in the morning; he has but cloth, and a cumbly already wet, he has no change but what is called a hood, made out of old cumbly; this is supposed to be kept dry for him in the cell, but the cell may be wet too, the rain beats in through the bars, which are only about 6 inches from the ground; if he fastens the shutters, and he will, if not watched, to keep himself warm he is nearly smothered as there is no thorough draught, and the floor is flooded with urine; he must lie with his thinly walled chest nearly bare on the chunam, and he probably catches cold in his pericardium, if his heart is already enlarged, and his circulation disturbed, or possibly, as occasionally happens, his pleuræ may become affected.

Sheep become affected in the same way in the rainy season from lying on the wet ground. We have not often an opportunity of examining them (one takes better care of one's sheep); but, a few days ago, I opened a sheep that had died from the neglect of the shepherd, and found effusion of bloody serum in the pericardium.

It was this lying on the ground in wet weather which I used to think brought on beriberi in Burmah among the Telugoo sepoys, who had previously prepared themselves by voluntary starvation; I imagine no one ever saw a Burman (who builds his house on posts 8 or 10 feet from the ground) suffering from beriberi.* Some have thought that the attah eating people are exempt from beriberi. I have seen Bengali sepoys (in Madras Regiments) and Bengali convicts in Burmah suffering from it, and I cannot imagine any effect the attah can make beyond its known different powers of nutrition. I used to find that when suffering from anæmia or from diarrhœa which was common there, they could not digest wheat flour so well even as rice, and that they used to make away with it. The same objections do not apply to bread, and a man even with but poor powers of digestion can obviously abstract much greater nourishment, and that much more quickly, than he could from any amount of rice. The natives of all classes here, except the Brahmins, are accustomed to eat bread and drink sheep's milk occasionally, particularly when they suffer from any ailment. The Brahmins of course eat wheat flour, but when they suffer from anæmia they find that they cannot digest it, milk too

* The sepoy barracks in Burmah are similarly raised from the ground, and yet the men, in certain seasons, have suffered very considerably from beriberi.—ED. *M. Q. J.*

does not agree with them. Some of them have told me that they would willingly eat bread if it could be made without toddy, as that is against their caste. I have suggested Hydrochloric Acid and Carbonate of Soda which combined, have, I believe, been used as a ferment.

These are all the remarks which I think it worth while to trouble the reader with as to the causes of this jail disease; but I may mention in conclusion, that one of the patients who caught beriberi on a night when the jail cells were flooded, has just expired somewhat suddenly, and the *post-mortem* appearances being rather more marked than usual, seem to confirm the opinions I have expressed above. They are these.

Post-mortem of Savanah (Beriberi), 11 hours after death. The body somewhat emaciated, but there was a good deal of fat about the chest. The lungs were remarkably pale, the right was firmly adherent throughout to the walls of the chest, while there were several firm adhesions of the upper lobe of the left lung to the pleura costalis. The pericardium was thickened, and contained 6 oz. of a deep straw colored fluid; the heart appeared much enlarged, it was pale, and on its anterior surface there were two large patches of white lymph, one on each side of the sulcus dividing the ventricles. The coronary and cardiac veins were *very much* distended with blood. There were some small granular deposits in the aortic valves; the walls of the left ventricle were much thicker than usual; all the cavities of the heart were filled with dark blood, and there was a large piece of fibrinous lymph adherent to the posterior wall of the right ventricle. The heart, when empty, weighed 12½ oz.

Postscript.—I forgot to mention that I have lately made a trial of Ergot of Rye, in small and repeated doses, in this disease. I cannot give any better reason for having done so than that, as it has such an effect upon the involuntary muscular fibres of the bladder and uterus, I could not see why it might not be of use in invigorating the muscular fibres of a flabby and dilated heart. I have as yet only tried it throughout one case; but the result has been such as to encourage me to make further trial, should opportunity offer. It seems to have removed the palpitation without depressing the system, as digitalis would have done, but I must avoid entering into further detail until I can speak with more confidence as to its effects. Meanwhile others may be induced to try it also.

ART. IV.—*Annual Medical Report of the Madras Lying-in-Hospital, from 1st January to 31st December* 1860. By W. AITKEN, M.D., Superintendent.

(Presented by the Principal Inspector General Medical Department.)

Actual confinements	894
Brought to hospital immediately after confinement, or confined on the way to hospital	33
Died during labour (undelivered.)	1
Total	928

Class.	*Division.*	*Subdivision.*	
I. Natural.	1st.—Purely natural		826
	2nd.—Varieties of natural	*a.* Face	4
		b. Head and hand	4
II. Difficult.	1st.—Tedious		28
	2nd.—Instrumental	*a.* Forceps	15
		b. Crotchet	13
III. Preternatural.	1st.—Breech and lower extremities		38
	2nd.—Thorax and upper extremities		4
IV. Complex.	1st.—Plural births	*a.* Twins	10
	2nd.—Convulsions	*a.* Epileptic	2
		b. Apoplectic	1
	3rd.—Hæmorrhage	*a.* Accidental	2
		b. Unavoidable	2
		c. Post-partum	4
	4th.—Rupture of uterus and vagina		1
	5th.—Prolapse of the funis		3
	6th.—Adherent placenta		1

The report of the Lying-in-Hospital now submitted for the year 1860, shews an increase of 88 in the number of deliveries over that of the preceding year, and thus affords satisfactory evidence of the continued usefulness of the institution. The large numbers resorting to it year by year, as well as the number of deliveries (above 8,000), which have taken place in it since its opening in 1844, is a gratifying proof of the general appreciation of the benefits it offers, and at the same time, so far as the natives are concerned, of the success with which their prejudices have been combated.

During the year, 928 cases of labour were brought into hospital. Of these 826 were of natural, 56 of difficult, 42 of preternatural, and 26 of complex labour, including one who died undelivered. These 928 women gave birth to 937 children, 10 of which were the produce of twin births. Of the children 501 were males, 436 females, or an excess of

0·146 per cent. of males over females. 844 were born alive, 93 still-born.

Of thes 93 still-born children, 10 were putrid at the time of birth, which being deducted leave 83, whose deaths were either the result of labour or took place immediately prior to its setting in. Of the 93, 58 were males, 35 females.

Natural Labour.

Of the total number of natural cases 213 were first pregnancies, and of their children 23 males and 10 females, or 15·49 per cent. were dead born.

Difficult Labour.

This class includes all cases of delayed labour, whether in the first or second stage, and according to the termination they are recorded under the heads of Tedious and Instrumental.

1*st Division.—Tedious Labour.*

Twenty-eight cases of this kind occurred, in which the labour was simply extended over a longer period than the ordinary limits, with little or no apparent injury to the mother; but as observed in a former report, with greatly increased danger to the child—the proportion of deaths being as 3 to 1 compared with natural labour.

2*nd Division.—Instrumental Labour.*

This division includes the cases, 28 in number, which required the use of instruments for the termination of the labour, and with regard to them I have again to observe that their state at the time of admission was, in general, such as to leave no room for doubt or delay regarding the treatment.

A few cases are subjoined, and also tables shewing the ages of the women, the numbers of the pregnancies, and the duration of the labours; also, the modes of delivery, and the results to mothers and children.

No case of hydrocephalic disproportion or of pelvic deformity has occurred: the disproportion which called for the use of instruments having, in all the cases, been owing to a conjested and tumefied state of the passages—the result of prolonged and inefficient parturient efforts.

No. 1.—Anthoniah, 13*th Pregnancy.*

Brought to hospital January 12th, at 7 P. M., in a state of great prostration; said to have been 18 hours in labour.

No hæmorrhage by account from the commencement of labour; no uterine action at admission; fœtal heart audible; os fully dilated; head high up in the pelvis, much ossified and large.

Brandy with arrow-root were given till the pulse improved, when she was delivered by the forceps. The head required considerable compression before it could be brought down, and the child was still-born. The means for resuscitation failed, the placenta came away naturally, followed by a good contraction. She did well.

No. 2.—RUTHNUM, 1*st Pregnancy.*

Brought to hospital April 8th, at 4 A.M.; said to have been 35 hours in labour. The os was fully dilated; membranes ruptured, and head presenting in first position; uterine action feeble; fœtal heart audible; bladder distended; bowels not moved for three days. A stimulating enema was given, and a binder firmly applied, with the effect of bringing on a slight increase of the pains; but as she made little or no progress the forceps were applied and she was delivered at 10 A.M. of a living child; the placenta followed in 10 minutes, and the uterus contracted well.

There was slight abdominal tenderness for some days, but she subsequently recovered well.

No. 3.—UNGAMAH, 1*st Pregnancy.*

Brought to hospital August 29th, at 8½ A.M.; said to have been 2 days in labour, and to have had little or no pains for 12 hours prior to admission. The pulse was 100, weak; skin cool; action of fœtal heart strong and regular; the os was fully dilated; membranes broken; head in 3rd position. The bladder having been emptied, and a binder applied a draught of Tinct. Ergot ℥ i., Brandy ℥ iss., Mist. Camphor. ℥ iss. was given, and at 8¼ A.M. she was delivered by the forceps of a living child. The uterus contracted well and expelled the placenta in 15 minutes. Recovery good.

No. 4.—COOPAMAH, 1*st Pregnancy.*

Brought to hospital December 28th, at 7 A.M.; said to have been 2 days in labour. Membranes ruptured ten hours before admission; os well dilated; pains slight; head in first position; fœtus alive; passages cool and moist; vulva swollen; pulse 136; skin cool; had a rigor after admission.

The bladder was relieved by the catheter and a binder applied, and she was delivered by the forceps of a living child. The placenta followed in a few minutes.

For the two succeeding days she had slight abdominal tenderness.

On the 31st she was apparently quite well and was removed by her friends, as (she being a Brahmin) they were anxious to have her home.

January 1st she was brought again to hospital in the evening with fever, and the bladder enormously distended. This was followed by severe peritonitis, from which, however, she recovered satisfactorily.

TABLE 1.

DIFFICULT LABOUR.

Ages of Women	14	15	16	17	18	19	20	21	22	23	24	25	29	32	41
No. of Women	7	8	5	10	1	8	6	2	0	1	2	2	1	2	1

No. of Pregnancies	1st	2nd	3rd	4th	7th	8th	9th	13th
No. of Women	20	6	7	6	4	7	5	1

Hours in Labour.	1¼	3	3¾	7¾	8¼	9¾	16½	17½	18	20	21	23	26	28	30	31	36	48	72	74¼	96	99	Unknown.
No. of Women.	2	1	4	1	1	1	3	3	5	7	2	2	1	1	3	1	1	2	3	1	1	1	9

TABLE 2.

DIFFICULT LABOUR.

Modes of Delivery and Results to Mothers and Children.

No.	Presentation.	Mode of Delivery.	Results			
			To Mothers.		To Children.	
			Recovery.	Death.	Alive.	Still-born.
13	Head	Craniotomy	12	1	0	13
15	Head	Forceps	15	0	9	6
2	Head	Version	0	2	0	2
26	Head	Natural	26	0	21	5

PRETERNATURAL LABOUR.

1*st Division.—Breech and Lower Extremities.*

In this class are comprised all presentations of the breech and lower extremities—38 in number—exclusive of those in twin births; 33 were delivered by the natural efforts, and 5 only required assistance—four manual and one instrumental.

The instrumental case was brought to hospital at 7 P. M., February 27th; said to have been three days in labour; the os uteri was fully dilated; breech presenting; no uterine action; passages not well dilated; vulva inflamed; no signs of fœtal life. Half a drachm of ergot with an ounce of brandy were given, and the breech brought down by the blunt hook with considerable difficulty. The arms passed easily, but the head had to be lessened with the perforator before it could be freed from the os uteri. A second dose as before was given, and the uterus contracted well, expelling the placenta almost immediately.

There was slight abdominal tenderness the second day after the delivery, but she subsequently did well.

		Recovered.	Died.
Results to mothers		38	0
Do. to children...	Males alive	7	15
	Females do	10	6

2*nd Division.—Shoulder and Upper Extremity.*

This division comprises all presentations of the shoulder and upper extremities, exclusive of those in twin births.

Of these 4 occurred, the modes of delivery and particulars of which, are as follows:—

Two were delivered by evisceration and two by version.

		Recovered.	Died.
Results to mother		4	0
Do. to children...	Males alive	0	2
	Females do	0	2

The first case of evisceration was that of a woman who was brought to hospital January 6th, at 1½ P. M. The os uteri was pretty well dilated; the membranes ruptured, and the right arm in the vagina; no pains and no signs of fœtal life. Evisceration was at once performed; the placenta extracted; and good uterine contraction followed. She recovered well.

The second case was brought to hospital January 9th, at 9 A. M.; said to have been 22 hours in labour. The mem-

branes had been ruptured six or eight hours previously, and soon after the left arm had come down. Uterine action was strong; pulse 120; skin hot; no signs of fœtal life; the extruded arm was cold, swollen, and denuded of cuticle in several places.

The perforator was at once introduced, and after the removal of the thoracic and abdominal viscera, delivery was easily accomplished. She did well.

The first case in which version was performed was brought to hospital June 22nd, at 3 P. M.; said to have been 3½ hours in labor. The os uteri was well dilated; the membranes entire; and the left shoulder presenting. The feet were brought down with ease; the child still-born; no pulsation of funis. The placenta followed in about a quarter of an hour; the uterus contracted firmly; and she did well.

The second case was brought to hospital August 25th, at 7 A. M.; said to have been 31 hours in labour, and the liquor amnii to have escaped about 8 hours before admission. A pulseless loop of the cord was protruding from the passages; the pains were strong and almost incessant; pulse 98; skin cool; os not fully dilated. The head, left hand, and left foot were felt within the os uteri; the bladder empty. Tinct. Opii. ʒ i., Mist. Camphor ℥ i. was given.

At 8½ A. M. the os was found well open; the pains more regular and less violent. The feet were brought down by gentle traction, and when the body had been quite turned, Tinct. Ergot ʒ ii., Brandy ℥ i., Water ℥ i. was given to her. The delivery was easily accomplished. The uterus contracted well, and the placenta followed after five minutes. She did well.

Complex Labour.

1*st Division—Plural Births.*

Ten cases of twins, or 1·07 per cent. of all labours, have occurred. Of the 20 children, 5 were males, 15 females. The delivery was natural in all the cases.

The ages, numbers of the pregnancies, the presentations, and modes of delivery, are given in the following Tables:—

TABLE 3.

Ages of Women.....	14	16	20	28	29	30
No. of Women.....	1	2	2	1	3	1

No. of Pregnancy.....	1	3	5	6
No. of Women.....	4	2	3	1

TABLE 4.

No.	Sexes of Children.		Children.		Presentation.		Modes of Delivery.
	Males.	Females.	Alive.	Dead.	1st Child.	2nd Child.	
1	0	2	2	0	Head.	Feet.	Natural.
2	0	2	2	0	do	Head.	do
3	2	0	1	1	do	Breech.	do
4	0	2	2	0	do	Head.	do
5	0	2	2	0	do	do	do
6	0	2	1	1	Breech.	Breech.	do
7	2	0	0	2	Head.	do	do
8	0	2	1	1	Unknown.	Unknown.	do
9	1	1	2	0	do	do	do
10	0	2	2	0	Head.	Feet.	do

2nd Division.—Convulsions.

Three cases only of convulsions or 0·32 per cent. of all labours occurred during the year. In two cases the attack was coincident with the commencement of labour, and in one the convulsions set in after the labour had made considerable progress. All of them were first pregnancies. The cases and a table of particulars are subjoined.

CASE 1.

Admitted January 6th, at 10 A. M., in her first pregnancy, said to have been three days in labour. The pains were not doing much good; head in the pelvis; fœtal heart not audible. The urine was drawn off, a stimulating enema given, and a binder applied. After 12 o'clock the pains became weaker; the skin hot, and the pulse rose to 130; the head remaining where it had been on admission. After this she was seized with convulsions, and the forceps were immediately applied, but delivery could not be effected by them, as the head would not descend. Craniotomy was then performed.

After the birth of the child Tinct. Ergot ʒ i., Brandy ℥ i., Camphor grs. x. were given. The placenta came away naturally soon after, and there was a pretty copious hæmorrhage, and a good deal of trouble in securing a good contraction.

A second fit came on in half an hour, during which the pulse became weak and the skin cold. The brandy and ergot were repeated, and she rallied well.

At 6 P.M. no more convulsions; pulse good; skin warm; complained of slight headache; ordered the following draught for bed time. Tinct. Opii. ♏ xl., Camphor grs. x., Water ℥ ss.

7*th.*—Slept well, no complaint.

Vespere.—Complained of slight tenderness over the uterus on pressure.

The abdomen to be fomented with turpentine, and to take at bed time.

Calomel gr. ii., Opii. gr. ii. To be repeated if necessary.

After this she did well and made a satisfactory recovery.

No. 2.

This case was brought to hospital January 12th, at 10 P.M., in her first pregnancy; said to have had convulsions from 6 A.M. The os was the size of half a rupee; pulse soft, frequent; skin natural; scalp hot. Calomel grs. x., Ol. Croton, gtt. v., Antimon. Pot. Tart. grs. ss. were given.

A purgative enema was thrown up, cold applied to the head and sinapisms to the calves. No fit until 12 o'clock, when she had two with a short interval between; and on examination the os was found fully dilated; the head still high up in the pelvis. She had vomited once, and the bowels were moved twice. The urine was drawn off, and the forceps applied, a pulseless loop of the cord coming down with the head; they were withdrawn, and the delivery completed by craniotomy. The placenta came away in a little time; it was very soft and covered on the uterine surface with calcareous matter.

At 2 A.M. another fit came on, the first after delivery. Tinct. Opii. xl., Mist. Camphor. ℥ ss. was given, and at 3 A.M. another fit, the draught was repeated, and cold re-applied to the head.

Slight fits continued to occur every hour until 6 A.M., but she slept quietly during the intervals. Calomel, Camphor āā grs. ii. were ordered every hour, and a blister applied to the nape of the neck and occiput.

8 A.M.—Slight convulsions still continuing, passed a copious motion containing a large round worm.

Omit Calomel, continue Camphor gr. v. every hour, and ice to be continued to the head.

Noon.—No convulsion since last report; blister has risen well; bowels not moved again; pulse quiet and of good strength; skin warm; continue Camphor every second hour.

17*th.*—Fever; uterine tenderness diminished; pulse 120. Turpentine fomentation to abdomen. Syringe vagina with tepid water.

Pil. Hydrarg. gr. iii.
Camphor grs. v.
Opii. gr. i., M. ft. pil. ter in die.
Port wine ʒ i., three times a day.

25*th.*—Improving; no fever; little pain in uterine region; lochia increased; pulse 90; appetite good.

Omit Pil. Hydrarg.
Continue Camphor and Opium.
Continue Wine and Fomentation.

27*th.*—Left hospital, doing well.

No. 3.

Brought to hospital March 19th, at 2 P.M., in her first pregnancy; said to have been in labour, and to have had convulsions since 6 A.M. Os uteri very little open; membranes entire; head presenting. A purgative enema was immediately given; the hair removed; and cold assiduously applied to the scalp, which was very hot, and sinapisms applied to the calves. The convulsions continuing to recur every fifteen or twenty minutes with great severity, there was no opportunity of administering anything by the mouth. The pulse was small, weak, and frequent, and the skin hot; another enema was given after an hour, with the effect of moving the bowels freely three times, but the labour did not progress, nor the convulsions abate, either in severity or frequency, and she fell into a state of deep coma, and died at 10 P. M. (undelivered.)

TABLE 5.

CONVULSIONS.

No.	Age.	No. of Pregnancy.	Results to		Mode of Delivery.	Presentation.	Duration of Labour.
			Mother.	Child.			
1	15	1st	Death. ...	Death..	Undelivered	Head.	Unknown.
2	20	1st	Recovery.	do.	Craniotomy.	do.	36 hours.
3	19	1st	do.	do.	do.	do.	23½ do.

3rd Division.—Hæmorrhage.

Eight cases of hæmorrhage occurred—four before, and four after delivery. Two of the cases that occurred before delivery were accidental, the other two were unavoidable. The particulars of one of the first are as follows. The woman was brought to hospital January 8th, at 6 A. M., in a state of extreme prostration ; said to have been two days in labour, and to have had profuse hæmorrhage during the previous night. The skin was cold and clammy ; pulse small and feeble ; the os uteri well dilated ; passages cold ; no uterine action ; head at the brim, which appeared somewhat contracted in the antero-posterior diameter ; four of her former children were said to have been still-born.

She was at once delivered by craniotomy without any difficulty, and a drachm of Ergot given. The placenta had evidently been entirely detached and came away with the child. Almost immediately after delivery she began to complain of extreme tenderness in the hypogastric region, could not bear to to be touched, and was removed by her friends in a precarious state.

One of the unavoidable cases was brought to hospital May 10th, at 1 P.M., in an extremely exhausted state ; said to have been 17 hours in labour, and to have had profuse hæmorrhage all the time. Her skin was cold and clammy ; pulse scarcely perceptible ; respiration hurried, no hæmorrhage. The passages were cold and relaxed ; the os uteri fully dilated ; membranes entire, and about half the os covered with the placenta, which seemed to be completely detached. The presentation could not be felt until the membranes were broken, and then it was found to be a foot, with the head lying a little above the pelvic brim. Tinct. Ergot ℥ ii., Brandy ℥ ii., Mist. Camphor ℥ i. was given, and the feet brought down and allowed to remain at the outlet a few minutes. Brandy was administered frequently at short intervals, but she did not rally. The fœtus and placenta were removed; the uterus contracted pretty well ; she sank soon after delivery.

In the 2nd unavoidable case the labour went on satisfactorily, and terminated without interference.

None of the cases of *post-partum* hæmorrhage call for particular remark, as the flow was readily restrained by the usual treatment.

4th Division.—Rupture of Vagina.

Only one case of rupture of vagina was admitted, the particulars of which are as follows.

The subject of it was brought to hospital November 12th, at 12 P.M., in a state of extreme prostration, could not say how long she had been in labour; abdomen large, cold, tender to the touch, and distinctly crepitant above the pubis, no uterine action; no signs of fœtal life; pulse scarcely perceptible, no hæmorrhage. The os uteri was well dilated; head large and well in the pelvic cavity, but receded on pressure, and could easily be raised above the pelvic brim, and a bloody discharge followed the elevation of the head.

She was immediately delivered by turning, and after the removal of the fœtus it was discovered that the vagina was torn at its junction with the anterior lip of the os, and that the fœtus and placenta had escaped into the abdominal cavity; the uterus being empty and firmly contracted. Tinct. Opii. ℥ i. with Brandy and Camphor mixture each ℥ ii. was given, and Brandy with nourishment administered until re-action had set in. After this Tinct. Opii. in half drachm doses was given every third hour, until she sank 17 hours after delivery.

5th Division.—Prolapse of the Funis.

Occurred 5 times as a complication as follows—

With head, hand, and feet..... 1
Breech..... 1
Foot..... 3

The treatment and results are shown below.

TABLE 6.

No.	Presentation.	Mode of Delivery.	Result to Children.
1	Head, hand and feet...	Version.....	Death.
1	Breech.....	Natural.....	do.
2	Foot.....	do.	Alive.
1	do.	do.	Death.

6th Division.—Adherent Placenta.

One case was brought in with a profuse fœtid discharge twenty three hours after delivery; the placenta was removed, and she did well.

OBSTETRICAL OPERATIONS.

As observed in a former report, the greater number of the cases requiring operative assistance were brought into hos-

pital in a state calling for immediate relief, either on account of some serious complication or the inadequacy of the natural powers to the completion of the labour. The indications for the use of instruments were exhaustion, fever, rapid failing pulse, and the doubtful condition or death of the child.

Sixteen deliveries were effected by the forceps, seventeen by the crotchet, and three by version.

The mortality during the year has been singularly small—only eleven deaths having taken place. Three only of these were the actual result of labour, the other eight were from puerperal fever: of the deaths from the latter cause six happened in January and two in February. The introduction of the disease seemed to be immediately owing to the admission of a woman in the last stage of dysentery, peritonitic symptoms having supervened on delivery: the other cases having followed closely on that one although every precaution had been taken to guard against its extension by separation and thorough cleansing of all instruments and utensils that had been used for her.

The prominent symptoms in all the cases were vomiting and diarrhœa.

The matters ejected from the stomach were at first bilious, and towards the close, coffee ground vomit. There was great and sudden tympanitis with much tenderness of the abdomen; the lochia and milk were suppressed; the tongue dry, red, and rough, pulse frequent and feeble; skin not very hot and dry. They were treated with Calomel, Opium, Quinine, and Camphor, in pills every 3rd hour. Turpentine stupes and blisters to the abdomen, occasional doses of castor oil with turpentine, wine, and nourishing food. An examination was not permitted in any of the cases.

Tables shewing the duration of labour with results to mothers and children.

TABLE 7.

	Hours in labour.	1¾	7	8¼	10	16½	17	20	23	30	31	Unknown.	48	72
Forceps Cases.	No. of Woman.....	1	1	1	0	1	1	1	1	2	1	3	1	1
	Died.....	1	0	0	0	0	0	0	0	0	0	0	0	0
	Children died.....	1	0	1	0	1	0	0	0	0	1	1	0	1

TABLE 8.

Hours in labor.		31	18½	30	31	48	72	96	Unknown.
Perforation Cases.	No. of Women...	1	1	1	1	2	3	1	3
	Died.....	0	0	0	0	0	0	0	0

CLASS OF FEMALE PUPILS.

Remained.....	6
Admitted.....	13
Passed with Certificates.....	9
Left Hospital before completing studies. ..	4
Remaining.....	6

As shewn above, 13 pupils have been admitted to the hospital practice, 9 discharged with certificates of qualification, and 4 before completing their studies. From the proficiency and the amount of practical knowledge acquired by those sent out with their certificates of qualification, I feel satisfied they will not only do credit to the hospital, but also extend its benefits in all directions over the country.

The expenses incurred on account of the Midwifery class amount to Rupees 493-1-7.

ART. V.—*Remarks on a Case of Variola, supposed to have arisen from Vaccination.* By Assistant Surgeon M. C. FURNELL, Madras Medical Service.

"Cow-pox and Small-pox are not *bonâ fide* dissimilar, but identical, and the vaccine disease is not the preventive of small-pox, but the small-pox itself. The virulent and contagious disease being a malignant variety."—*Jenner.*

Can vaccination cause small-pox? A question I think most men would readily answer in the negative.

And yet no one in the present day would feel inclined for a moment to doubt that vaccinia is simply variola, modified by transmission through the cow; *i. e.*, that small-pox is the parent of the cow-pox;—will the converse never hold good? Can small-pox never be produced from cow-pox.

That small-pox can, and will, produce a disease in the cow, which in its turn will, when inoculated on man, develope what we have agreed to call vaccinia, is established perhaps beyond a doubt, by the observations of many, but perhaps by none more clearly than by the laborious observations and experiments of Mr. Celey.

One account is simply this. A farmer possessed some cows which were in the habit of grazing in a meadow, bounded on both sides by houses; in one of these houses small-pox made its appearance, and one of the inmates died.

The people afflicted, in the evening after the cows were withdrawn, were in the habit of exposing their sheets, blankets, &c., on the hedges to air, more especially was this done after the death had taken place. The flock of the bed on which deceased had lain was on one occasion turned in the meadow.

To this the cows one morning obtained access and were seen amidst it, licking it. They were in perfect health when it occurred, but subsequently sickened; their teats became affected, heat and tenderness came on, and imbedded in the skin could be felt small hard pimples, which daily increased in magnitude and tenderness, and in a week or ten days rose into blisters, and quickly ran into brown and blackish scabs.

From milking these cows a Mr. Pollard, aged 56, who had never had small-pox or vaccinia, became infected with vesicles on his hands, which had all the appearance of true vaccine vesicles.

Again, Mr. Ceely in a series of experiments carried on before Medical men, and subsequently published in the "Transactions of the Provincial Medical and Surgical Association," inoculated cows with matter taken from small-pox pustules, producing vaccinia in the animals, from which he subsequently vaccinated, most successfully, a number of children and adults.

The above is pretty conclusive evidence. Will this vaccinia then never again produce small-pox? If it is the same disease, a different variety of the same species, one would be led to think that sometimes it might; indeed the real difficulty to my mind is to account for why it does not always do so. It is simply one of those accepted facts which, from its every day occurrence, cease to create surprise.

The following case has a very interesting bearing on the subject.

Mr. Beaman, Zillah Surgeon of Rajahmundry, vaccinated his child from the arm of a healthy native child on the 6th day of June; at the same time he vaccinated his two other children, boys of about 4 and 2 years of age respectively.

The baby at the time of vaccination was as fine and healthy a child as could well be seen. It was only two months and seven days old.

The vaccination ran its course very favorably and naturally until the 14th (8 days after), when the child became a little cross and feverish; nothing, however, to create alarm.

The next day the child was very sick, and the father, himself, in very indifferent health, becoming uneasy, asked me to ride over and see it.

The child I found feverish, very fretful, crying constantly, sleepless, sick, vomiting its food as soon as taken, and in fact very poorly. When the fits of crying came on, it was described as tossing its head about and turning in its thumbs as if about to have convulsions, so said the father, who naturally was very anxious; nothing resembling convulsions, however, took place when I saw it.

After some little trouble from its extreme restlessness, we managed to obtain a view of the child's arms, on each of which were two vesicles, pearly and white, having all the appearances of vaccine vesicles, but their bases much inflamed —a deep scarlet eruption, swollen and tumid, forming an extensive areola around each.

This seemed to me sufficient to account for all the irritation, and after some conversation we agreed to poultice the parts inflamed, and gave the child a sedative.

This proved of great service, the child ultimately had a refreshing sleep, awoke much easier and took its food; on this day, the 16th, I noticed some small pimples on its hands and pointed them out to the father: the child was still feverish.

The next day, 17th, the pimples had increased in number and the older ones were more prominent, and slightly vesicular—they increased in number and development until, on the 20th, the last day I saw the child, it had then a very fair eruption of *as true small-pox pustules*, as one could wish to see: umbilicated with the small brown scab on the top, not very numerous, but such as one sees in a mild attack of true

variola. They were most numerous on the back and limbs, a few only on the face, and *none* on the abdomen or chest.

After the three days fever and fretfulness, coincident in fact on the eruption appearing, the child recovered its health; it had no more fever, the pustules ran their course, and to quote Mr. Beaman's subsequent letter to me, "suppuration progressed quietly: he has since that appeared quite well, feeds well, laughs well, and sleeps well, his flesh is firm and plump, and his checks have color. I never had the least doubt about the genuine character of the vaccine vesicle from which I took the lymph."

But to satisfy myself, as I took, naturally, great interest in the case, I sent, after Dr. Beaman's departure, for the child he took the vaccine lymph from; *it* had had no eruption, and the scars of its vaccination presented the true appearance of vaccine vesicles.

Of the other two children vaccinated at the same time the result was nothing on the eldest one's arm, who had been vaccinated before. On the second "Normal vaccine vesicles, running the usual course, without any other speck or spot upon his body."

"Another curious thing," continues Mr. Beaman, "is the fact that the eruption upon the baby may be seen in various stages at the same time—some pimples just coming out, others maturating, and others drying up and forming crusts."

Before offering any comments on the above case, I will mention that some time in February last, several children in the cantonment, some Europeans, some Eurasians, and others native, were vaccinated by one of the District Vaccinators, and that in two, especially in the case of the child of the Serjeant Major, considerable irritation took place in the arms, followed by an eruption.

It was most marked in the child of the Sergeant Major, a pure European, whose mother consulted me about it. The eruption, not very abundant was, however, so exactly like small-pox, that the woman herself suggested her child had been inoculated: in this case there was very little constitutional disturbance. It struck me at the time as strange, and I made a note of it; the other children had, however, no eruption with the exception of the child of the Dresser, who reported the circumstance to me, but made some excuse for not shewing the child. These cases induced me to write a

letter to the Superintendent of Vaccination in the district, of which the following is a copy.

TO THE CIVIL SURGEON OF RAJAHMUNDRY,
Superintendent of Vaccination.

SIR,—I have the honor to draw your attention to the vaccine matter at present in use by the District Vaccinator. Four children vaccinated with it in this cantonment have suffered more or less severely; one with symptoms and eruption, I should not have hesitated to call variola, had it not been so evidently connected with the vaccination. I should feel obliged by your making some enquiries into the matter.

I have the honor to be, &c.
(Signed) M. C. FURNELL,
Assistant Surgeon.

DOWLAISHWERAM, *February* 14, 1861.

The above cases must be admitted to be very interesting, and the questions naturally arise,

Had the child (Dr. B.'s) small pox?

If so, was it caused by vaccination?

If not by vaccination, was it small-pox and vaccination, cotemporary—one modifying the other?

Had the child small-pox? There can I think be very little doubt of that, the small-pox pustule even isolated has a very unmistakable appearance, but an aggregate number presents an appearance, nothing else does. It is small-pox, for it is nothing else.

The child was subsequently seen by Mr. Lloyd and Dr. Wilkins at Cocanada, who both at once pronounced the disease to be small-pox.

From its mode of production one might feel inclined to give it another name, and call it vaccinella; but vaccinella, as described by systematic writers, is a very different eruption. "Vesicles and Bullæ developed upon inflamed patches; numerous small vesicles containing limpid and transparent serum."

Wilson, in his "Diseases of Skin," quotes the case of an infant in which the secondary eruption of vaccinia or vella was so severe as to be the cause of death.

"The eruption commenced upon the head and face, and thence extended to the neck and chest. On the latter there were more

than one hundred vesicles, presenting the characteristic flattenned and umbilicated form of the vaccine pock. They were, for the most part, distinct, but every here and there were confluent clusters of three, four, and five. On the neck the vesicles were confluent, the slight and irregular intervals of skin between the large patches were vividly red, and the whole surface poured out an abundant ichorous discharge."

This certainly was not the character of the eruption, seen in the case to which I am drawing attention, the eruption here was nothing else but small-pox, and despite the strangeness of its advent, well marked and unmistakable in its physical characteristics.

That it was brought about by vaccination, *i. e.*, that the morbid matter which produced the eruption was introduced into the system by the operation, I confess myself to be thoroughly convinced of, though I believe a different opinion is entertained by my professional brethren, who subsequently saw the patient. On this point there are happily several cases published, and no doubt more might be adduced than those I am about to offer, if more extensive records were at my disposal to search for them.

Wilson conceives that six facts have been established relative to the diseases—variola and vaccinia. Passing over the other five, I will quote his 6th, it is this :—

"6.—The transmission by inoculation of the cow-pox to man, and the consequent development of an eruption similar to, if not identical with, small-pox."

I may be forgiven quoting at length the paragraph in which he supports the above proposition.

"It has been observed that when the epizootic disease presents characters of great severity, the symptoms produced on man by inoculation from such causes were also severe, and often serious; contrasting strongly with the mild affection engendered by the virus from the ordinary discreet form of cow-pox. Mr. Macpherson, in experiments with this virus in Bengal, in 1837, found that an eruption was developed, which was identical with small-pox. Mr. Wood of Gowalpara, in 1859 met with similar cases of so great severity that he was led to contemplate the substitution of inoculation with small-pox virus as a safer expedient. At Silhet, Mr. Brown removed some dark coloured scabs from a cow labouring under variolous disease and triturating them in a mortar, he inoculated several children with the pulp. These cases exhibited nothing remarkable excepting a somewhat greater degree of constitutional disturbance on the eighth day than usual. *After two months, children inoculated from*

this stock were attacked on the eighth day with severe fever, followed by an eruption which spread over the whole body, and in one case proved fatal.

"Thus, it would appear, that as the small-pox virus, when introduced into the system of the cow, is so modified by the vital laws which regulate the function of the animal as to produce an eruption of cow-pox; *so, on the other hand, the virus of the cow, under like circumstances, is modified by the constitutional phenomena of the human organism, and is made to assume the characters of small-pox.*

"After two months children inoculated from this stock were attacked on the eight day with severe fever." Mr. Beaman's child was vaccinated on the 6th, on the 14th, eight days after, it was attacked with fever which lasted, as I have said, above three days.

In Braithwaite's Retrospect of Medicine, Vol. XXIX., will be found the following singularly analogous case.

"Mr. Richardson related the case of two children who had been vaccinated by matter obtained from the same source. In one the vaccine vesicle went through the ordinary stages; in the other small-pox in a benign form, went through its entire course. He referred also to another case. Two children were vaccinated from the same points: one presented all the common appearances resulting from the process; in the other small-pox appeared, and went through its usual stages. He mentioned these cases to show that medical practitioners might be occasionally blamed for performing imperfect vaccination without any ground for such charge."

No doubt of it. Had the case now under review occurred, say to the Collector's child, instead of to the Zillah Surgeon's, it would have taken a good deal to convince so august a personage, that the medical officer had not made a mistake, and inoculated his child.

In the "Lancet" of March 30th, 1861, will be found a letter from a Dr. Gill, on a strange case. He says:—

"I vaccinated the child with twelve others, from one very fine arm. The twelve passed through the usual stages without an untoward symptom, but that of which I send the drawing, although vaccinated at three points of a triangle, sent forth, as will be seen, thirty-two pustules (not vesicles). Every one with a depression in the centre, very closely resembling small-pox."

As he says nothing of any eruption on the rest of the body, we must presume there was none.

Was this small-pox and vaccination cotemporary, *i. e.*, supposing them, as Dr. Gregory does (who proposes to call

vaccinia—Vaccinia Antivariolosa) totally separate things, was it small-pox modified by the vaccination?

This is a problem difficult to solve, I have expressed above my convictions on the subject, but it is a different thing to establish on paper the ground of those convictions.

In the first place the whole pathology of the matter is a perfect mystery; for why should the cow so modify the poison of small-pox, as to admit of its re-inoculation in man producing a milder and comparatively harmless complaint. The very first step in this physiological puzzle is so wonderful as to fill one with amazement, and quite under any subsequent deviations from a series of facts which it pleases us to call laws, matters of secondary surprise.

As to this child having small-pox apart from its vaccination, no one about the place had small-pox. The disease was not raging in the town, none of its domestics' families have it, or have had it lately, its clothes were washed on the premises! In fact a young child like that carefully nursed guarded, offers as fair a specimen of social quarantine as any subject can.

Again, the child began to sicken on the 9th day after vaccination, that is counting the day of the operation as one: this is a startling coincidence, for on that *very day* it must, to have had small-pox separately from vaccination, have been exposed likewise to contagion of variolous poison. The coincidence is too startling, it would put such evidence almost out of any court. But if vaccination could produce it, the day of its performance to the sickening and subsequent to the day of eruption, exactly tallies with the time laid down as necessary to elapse. The eruption did not show itself till the eleventh, the time it usually takes after inoculation. Says Wilson, "The period of eruption in inoculated small-pox is irregular, the eruption appearing on the second or third from invasion, or on the eleventh or twelfth from inoculation. The child was vaccinated on the 6th, the sickening took place on the 14th, and eruption was first faintly seen on the 16th.

But far be it from me to attempt to prove too much, or to pretend I think I see the pathological problem thus presented to us, clearly explained. I was, I confess, half stayed in my convictions from the following recollection.

The local sign indicating that vaccinia has taken, shews itself about the fourth day, the first eruption of small-pox is not evident till the eighth or ninth day, and I have

known this to be taken advantage of in the following manner.

In a house where one of the children was suffering from small-pox, and others, it was observed, were beginning to sicken, the medical man vaccinated the latter; the vaccine vesicles became developed, no small-pox occurred, and the sickness passed away.*

The old Doctor who I saw do this, a man of great intelligence and very large practice, and one whose student days dated back to the last century, jocularly remarked, "You see cow-pox can give small-pox three days start, and beat it in a canter."

So, unquestionably, it can when it acts as a prophylactic, that is, when vaccinia exerts its usual effect on the human frame; but that is no reason why we should ignore the fact that it may occasionally be so "modified by the constitutional phenomena of the human organism as to assume the characters of small-pox."

In conclusion, it must be admitted the case is one of great interest. Difficult as it may be to prove satisfactorily that the eruption of small-pox was caused by the vaccination, it would be equally difficult, if not more so, to prove that it was not; that would be only to remove the difficulty from one ground to another, for what then becomes of our vaunted prophylactic, either way it is equally anomalous.

But taking into consideration the absence of any traced contagion, the health of the child up to the 9th day, the sequence of the attack on its vaccination, and whilst the vesicles of vaccination were yet existent, the similar cases quoted, and the identity of the poisons as proved by Ceely's experiments, I am led to the conviction it is one of those cases, one of those exceptions proving the proposition laid down by the immortal Jenner:

"That cow-pox and small-pox are not *bonâ fide* dissimilar but identical, and that the vaccine disease is not the preventive of small-pox, but the small-pox itself. The virulent and contagious disease being a malignant variety."

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* This may be a well known practice, but I have never met with a notice of it in books and learnt it the way described above. It may also be objected there is no proof that the sickening children were about to have small-pox.

ART. VI.—*Papers relating to the Lesser known Hill Ranges of the Madras Presidency, (chiefly from the Records of the Office of the Principal Inspector General, Medical Department.)* Arranged by the Editors.

1.—DR. KELLIE'S *Report on the Chendamungalum Hills, dated 1st July* 1823.

2.—*Notes of a Recent Excursion to the Kolymullay or Chendamungalum Hills.* By R. BRUCE FOOTE, Esq., of the Geological Survey of India.

3.—DR. BIDIE'S *Report on the Hill Fort of Kondaveed in the Guntoor District.*

4.—CAPT. MULLINS' *Notice of the Fort on Udiagiri Droog, in the Nellore District.*

THE CHENDAMUNGALUM HILLS.

DR. KELLIE'S REPORT.

THE Chendamungalum hills lie about 40 miles to the north-west of Trichinopoly, unconnected with any other chain of hills. The nearest village to them is Poutram, which is situated about three miles from their base, in a flat cultivated plain, without jungle. So that I was enabled to take two observations—one with a table for the length of the range, which gave an angle of 138°, and the other with a pole 20 feet high for the altitude, the retiring distance was 90 feet.

The ascent is rugged, difficult, and surrounded with jungle, which becomes higher and thicker as we ascend; nearly half way up, there is a beautiful green spot without any jungle, where it is well to stop and rest for an hour or two; at the bottom of a glen, about 100 yards distant, there is a fine clear rivulet, running over its rocky bed, and shadowed by larger trees. The rest of the way is steep, but not rugged, and shaded by jungle; an hour's good climbing brings us to what may be considered the general level of this range of mountains; for the summit is not table land, but consists of continued hill and dale, mountains and intermediate valleys, with deep glens widening and deepening till they terminate in the plain below. Here we pitched our tents in a level verdant spot, through which ran a

small limpid stream ; this situation was rather low and surrounded by high hills on every side, so as to form a perfect amphitheatre, in which we were sheltered in some measure from the sun, and defended from the stronger winds. On the third day, however, we changed ground for a more elevated and more exposed situation, which was quite open towards the east, and commanded a wide view of the subjacent plain ; we left on our old ground another party of gentlemen, who happened to be there at the same time—our party consisted of six and servants, theirs of four.

It is only by ascending the greater heights, and traversing the intermediate valleys, that we can form an idea of the figure or extent of these mountains, in this way we may guess a surface, of which our encampment is the general level, at about 15 miles by 12.

By the angle taken at Poutram I calculated the length of that aspect to be 20 miles at the base. The highest point is a round hill called Etchinpilly, but this by no means commands a bird eye view of the whole range. This point may be about 6,500 feet ; our encampment about 4,500 feet from the base.* The rock is common grey granite, sometimes intersected by veins of soft aluminous earth, mica, and basalt ; on the summit of some of the greater heights, particularly Etchinpilly, there are masses of rich iron ore, semifused as it were by lightning, and not magnetic. Water boiled at the bottom of the hills at 208°, at our encampment at 202°, at the summit of Etchinpilly at 198°.

The monsoons and annual changes observe the same periods as in the regions below. This is the hottest season ; the average heat during the day was 78°, and at night 68°, giving a difference from the subjacent plain of, at least, 15°. We experienced several storms of thunder, rain, and hail, accompanied with very strong winds, which generally blew from the south-west.

During the whole time we were up the atmosphere was clear and dry, excepting during the storms ; to try the relative dryness of the air with that of Trichinopoly, 60 grains of Subcarbonate of Potassæ reduced to extreme dryness by roasting were balanced in a delicate pair of scales,

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* These figures, according to the more recent observations of Messrs. Foote and King, are exaggerated.—Ed. *M. Q. J.*

and the following table shows the respective increase of weight in given times.

Time.	Hills.	Thermometer.	Trichinopoly.	Thermometer.	Remarks.
Noon.....	grains 60	78°	grains 60	90°	Clear.
3 P.M...	60 + 5	80°	60 + 9	92°	Do.
6 „ ...	65 + 3	78°	69 + 3	88°	A storm of thunder and rain at Trichinopoly.
9 „ ...	68 + 3	76°	72 + 37	85°	
12 „ ...	71 + 4	72°	109 + 10	80°	
3 A.M...	75 + 5	70°	119 + 3	.....	Clear.
6 „ ...	80 + 4	66°	122.....	.....	After which it gained
9 „ ...	84.....	.....	.....	.....	nothing, being perfectly fluid

Rivulets were generally found running through the valleys, arising from the sides of the higher hills : they collected in the lower ground, where they were made to irrigate the paddy ; after which they again formed, were confined within narrow rocky channels, and found their way to the bottom after frequent falls and breaks ; this was exactly the course of that which run near our encampment ; after a course of little more than a mile it is precipitated over the rock, some hundreds of feet perpendicular.

This water is clear as crystal and tastes good ; but was said to convey a peculiar flavour to whatever was mixed with it. A bottle of it after ten days had assumed a very particular smell and taste, mawkish and subacid like incipient fermentation. These qualities were destroyed by boiling, but it had then a smoky vapid taste ; after ten days they nearly disappeared : subjected to acid, alkaline, iron, and sulphur tests, it manifested the presence of none of these.

Of vegetable productions there is great abundance, the sides of the hills are generally clothed with jungle, which becomes thicker and higher as they reach the valleys, in which we find some very lofty timber. Ferns and bramble berries abound in the ravines and sides of the mountains ; there is here a constant changing variety of flowers—affording to the botanist continual amusement. We have besides mangoes, jack fruits, plantains and limes : the native wheat, rice, and other grains.

Of animals there are few to be found of any description :

there are none of the tiger kind, but we find a few jackalls, no beasts or birds of game, excepting a few quails, few snakes, no ants, no mosquitoes.

The inhabitants are poor-looking creatures, small of stature and not well formed ; the men are almost naked, the women's only apparel is a cumbly tied under the axilla, which reaches half way down the leg. The latter are seen working about their habitations, the former occupied in cultivation, cutting wood, or in carrying down their scanty productions for sale to the villages below. Their huts are small, but generally floored with wood, they are collected in hamlets of from 10 to 20, which are enclosed by a fence, and marked generally by a mangoe tope, a lime or plantain clump. Of these hamlets about a dozen were named to us, allowing 5 souls for each hut, would give us about 900 inhabitants of these hills, but from what we saw we should hardly suppose about half that number.

The natives say that they suffer from fever during the monsoon, but not at other times.

The whole time we resided on the hills, we all enjoyed most excellent health and spirits—amusing ourselves in climbing and rambling over the different parts at all times of the day.

But what may appear singular, within ten days after our return to Trichinopoly, the four gentlemen of the other party were laid up with remittent fever, attended with much mental depression and excessive debility : while all the Europeans of our party continued to enjoy excellent health, two or three of our servants, however, had slight attacks of fever.

The reason of this may be found perhaps in one of two causes, or in a combination of both. Their continuing to reside on our old encampment after the thunder storms, when that low ground must have become surcharged with moisture, and their making use of the hill water in which we had observed certain peculiarities : while we used Trichinopoly water only, of which we had a daily supply. Of the modus operandi of either, as of that of most other remote causes, we are ignorant.

This, however, leads to the important questions—How far can these hills be considered healthy, and how far *can they* be recommended as salutary to the invalid, or a safe and delightful retreat for such as can leave Trichinopoly during the hot season ?

To the first general question a partial answer must be given. The elevated spots, the more extensive valleys, where the air is freely admitted on all sides, I should consider perfectly salubrious, and any noxious or peculiar quality of the water may, I have little doubt, be completely counteracted by boiling it before it be used, and its vapidness, the consequence of boiling, may be removed by passing it through the air, by causing it to drop from one vessel to another freely exposed to the wind. The more confined spots, which the rising and setting sun cannot touch, and where the fresh air is in a great measure excluded, and the lower valleys and glens, in which the heavier carbonated air might lodge, must, I think, be very nurseries of intermittent and remittent fevers, and as places of residence ought to be avoided,—particularly during the night, when the vapours are no longer dissipated or expanded by the solar rays.

These precautions being taken, and over fatigue avoided, I have no hesitation in recommending these hills to the invalid or convalescent, as a change from the plain, from which he might expect the greatest benefit, during the hot and dry season.

A cool retreat from the excessive heat of the plain, the preceding account will prove the hills to be, when it is recollected that in the hottest season of the year the thermometer hardly rises to 80°, and all vegetation is fresh and green; but as a place of enjoyment, we can affirm with less certainty, as this must depend on the employment and pursuits of the individual: it would never answer for an individual to take up here his solitary abode, nor will such, whose greatest delight is in field sports, find much here to amuse them, as there is hardly the possibility of getting *a horse* up and down, and there is little or no game of any kind on the hills.

(Signed) J. Kellie.

July 1823.

Notes of a Recent Excursion to the Kolymullays. By R. B. Foote, Esq.

These fine hills, otherwise called the Sudderaghiri Mullays, from their square shape, but generally known to Europeans as the Chendamungalum Hills, from the large village of that name on their western side, lie 18 miles S. S. E. of

Salem town. When seen from a distance they present a remarkably even outline—the highest parts being at the north and south ends, and apparently very nearly of the same elevation, and but little higher than the general mass. The highest peak at the north end, measured with an aneroid, was just over 4,000 feet above sea level.

We (Mr. King of the Geological Survey and myself) ascended the Kolymullays from different sides on the two occasions on which we had to examine the plateau at the top. On the first occasion we started from Chendamungalum, having sent on a Jubbulpore hill tent and a few indispensable articles, by a gang of coolies in the middle of the night. We started early in the morning and rode as far as our ponies could safely go, which was not far up the slope, for the ascent is very rapid indeed. Though the day was very cool, we had to go up very slowly, as I was so unwell that I had to stop every five or six minutes.

The foot of the hills is surrounded by a belt of fine tamarind trees, often forming quite a forest, and apparently growing wild; higher up was the ordinary jungle of the Carnatic hill ranges, but hardly any good trees remained. The upper part of the ghat, which is a very rough goat-path, is so steep as in many places almost to require hand-over-hand climbing, for some 500 or 600 feet.

We found our tents pitched on an open grassy spot, close to a small Mallayali village called Carancad, not shown on the map, lying about three-fourths of a mile west south west of Vakalputty. The temperature during the days was deliciously cool in the tent, and by no means oppressively hot outside; but the nights were bitterly cold, two thick blankets being quite insufficient, although the tent was closed.

We remained encamped here from Friday the 3rd February, 1860, to the Thursday following, when we returned to our other camp at Chendamungalum. On the Saturday (4th) we went north together to a place called Coolicadputty, some 4½ miles off, in a straight line, but by the wonderfully circuitous paths our guide led us, we could not have walked less than 9 or 10 miles ere we got there(1).

The forests in this part are very dense, but contain few

(1) It was near this village, if I recollect right, that an attempt was made some years since by two English gentlemen to plant coffee. They remained there about a month or six weeks till so ill with fever that they had both to be carried down to Salem, where one died. The survivor is Mr. Frank Groves of the Astagram Sugar Company.

Sketch Map
of the
KOLYMULLAY OR CHAINDAMUNGALUM HILLS

Scale 4 Miles to 1 Inch

4 3 2 1 0 4 Miles

DRAWN BY J. SUARES. 1861.

COVT LITH: PRESS. CENTRAL OFFICE OF P.W. CHEPAUK.

large trees, and are generally very dry, and reminded me of the eastern end of the Green Hills (Shervaroys.) Coolicadputty stands in the narrowest and least picturesque part of the hills, which are here deeply cut into by a great bay on the west, and by a long deep ravine on the north-east. We found the whole plateau to be far more rugged than we had expected from the even outlines of the hills—the ravines being very deep. The higher ridges have divided the plateau into five irregular shaped minor plateaux, of which number 3 (shown in the accompanying sketch map) is apparently the most elevated. The general slope of the Chendamungalum hills being to the eastward, towards which side all the larger streams flow.

The villages(2) are numerous and seem well to do; the Mullayalis, who are apparently of Tamil origin and speak Tamil, being a very civil and lively set of people as compared to the low country natives. They looked well, but complained of being subject to fevers for six months in the year. I did not notice any signs of enlarged spleen among the little naked children. They cultivate dry grain on the ground around their little villages, and hill paddy in considerable quantity in the small swampy flats in the valleys which run along the streams for miles. They take great pains with their paddy fields—the terraces being kept in beautiful order. In the plateaux, No. 3 and No. 1, these terraces form quite a conspicuous feature when looking down from the higher ridges. In many parts these valleys are very narrow and the sides of the paddy flats are overhung by large trees, —amongst which the sago palm and jack trees are very remarkable—the whole being a very lovely scene.

Although there is an abundance of thick jungle between the villages, we saw no game but jungle fowl, and the villagers said none was to be found. Nobody in our camp got fever during this stay on the Kolymullays.

One very remarkable feature on the plateau is the almost total absence of bamboo; only three or four large clumps being visible near a pagoda at the head of the great ravine on the eastern flank, by which the main stream of the southern plateau finds it way into the low country.(3) The

(2) The Mullayali huts on the Kollymullays, unlike those on the Shevaroys, are oblong in shape and built of wattle and dab with thatched roofs.

(3) This stream which appears to be quite perennial, contains great numbers of black carplike fish—about 14 inches long and very fat. They are very tame from being fed at the bund thrown across the river close to the pagoda.

natives said the bamboos had been destroyed by a tremendous hurricane some ten or twelve years previously. This absence of bamboos is certainly remarkable, for they abound on the Keddamullay and Anandymullay, which are northerly continuations of the great mass of the Kolymullays—and also on the Patchamullays, Rabrozenmullays and Gainandamullays and other ranges in this quarter. The jack trees attain an immense size. I measured several which were 28, 29 or 30 feet in circumference at four or five feet from the ground, and from 60 to 70 feet, at least, in height. The jack fruit, which attains an enormous size there, is an article for trade with the low country natives, and both in ascending and descending we met and overtook many people carrying jack fruits.

We enquired after teak and vengay trees, but were told none grew there, though they had formerly been common. We returned to Chendamungalum by the same ghat we had ascended, so did not see much of the hill side forests.

Our second ascent was made on the 1st of April following from a village in one of the long N. E. valleys which open into the Ahtoor talooks, and by a much more gradual slope than the Chendamungalum ghat, which involved a climb of, at least, 2,800 or 3,000 feet from the plains. Our camp on the occasion of our second visit was at Chittoor—a very beautifully situated village at the northern extremity of the range. Here we camped for three days, making excursions across the northern plateau and into the next one or No. 2. This part of the hills is, if possible, more lovely than the southern part. The view from the high ridge behind, or south of Chittoor looking across to the Shervaroys, is inexpressibly beautiful, and were it not for the feverish climate, that ridge would be a glorious situation for a hill station. The western end of this ridge is formed by the 4,000 foot peak I mentioned before.

On some of the rocky parts of this ridge we found great numbers of a very beautiful kind of liliaceous flower, of pink and white color, and having a deliciously fragrant perfume, but I do not know the species. The common cotton tree and cassia fistula grow to great size in this part of the hills. In one of our excursions in which we ascended the above high peak, we passed through a fine bamboo jungle mixed up with wild jack trees and sago palms, the only instance in which we observed any quantity of bamboo on the Kolymullay plateau; nor is it very common on the

flanks except in one or two of the N. E. valleys. There were many more large timber trees in the forests at this end of the hills than to the south, unfortunately, however, I do not know their names.(4)

In the valley of one of the larger streams between Chittoor and Coolicadputty, as well as in one of the streams in the plateau No. 4, I observed a small but dense jungle of a tall and exceedingly elegant variety of Pandamus. I walked in among the air roots, and found it to be like going into a steam bath—the air inside being quite suffocating and stagnant, and apparently in circumstances well adapted to become malarious. We found several ferns here and in other parts, of which, however, I have preserved no list.

The Geology of the hills is not very easily to be understood, because of the great quantity of jungle which is often quite impenetrable—especially on the flanks, on account of spring creepers of great size which hang in festoons in every direction. The principal rocks are hornblendic and quartzo-felspathic gneiss, with many garnets, in alternating well marked beds, having N. E. by E. strike, in general. Magnetic iron is commonly scattered through the latter variety of gneiss, and in one place east of Vanloandy (plateau 3) is a good bed of magnetic iron, much oxidized, however, on the surface. At the northern and southern extremities are a few small trapdykes, having a more or less W. E. course.

Several of the plateaux (especially No. 4) seem by nature to be made for enormous reservoirs, as by means of comparatively small dams, great quantities of water could be stored and allowed to flow down gradually into the Trichinopoly country, instead of going down with a rush as at present, when certainly half the rainfall is lost in freshes.

The result of our second visit to the Kolymullays was, that both we and our servants were in the course of a fortnight on our backs with a bad fever, in spite of the precautionary doses

(4) The headman of Chittoor village—a man some 50 years of age—told us when enquiring for teak trees, that almost all had been cut down, adding that teak was plentiful and fine in the days of his boyhood. We only saw one teak tree about a mile north of Chittoor, at a village called Lechamupullyputty which we passed through in descending the hills. It was a good sized tree, but with numerous branches springing from the trunk at irregular intervals. These branches commenced but three or four feet from the ground. From enquiries I think this is the only remaining old teak tree in this part of the Kolymullays.

of quinine we had taken both before entering and while remaining in the feverish country. The fever varied in character in several cases; in one or two it violently affected the head—in the first attack producing delirium, in others (for about 15 people had it) it was more of an intermittent fever with slight ague. In my own case it was something between an intermittent and a remittent fever—the intervals being about 14 days, during which I was never entirely free from feverish sensations. In September I went up to Ootacamund from Coimbatore, and King followed me ere long. We remained there till the middle of December. The attacks recurred regularly, without ague, till October, when I had a violent ague fit accompanied by congestion of the spleen and kidneys, from which I suffered great agony. The next day, but one, and again two days after, I had renewed violent ague fits, and was exceedingly ill; but then the fever ceased suddenly, and I got well rapidly. King's fever was similar to mine, excepting that it was rather stronger at first and lesser at the end, and lasted about a month less.

Of the men several very nearly died of excessive exhaustion during the first two returns of the fever. Several natives of the Revenue Survey caught fever in a village called Perriacombay at the foot of the Kolymullays where we camped before and after our second trip aloft, and they having no proper medical attendance, and no quinine, died in a few days.

List of Kolymullay Ferns (supplied by W. King, Esq.)

Nephrolepis tuberosa.	Nephrodium.
Pteris quadrata.	Hemionites cordata.
Pæcilopteris contaminans.	Adiantum caudatum.

and several other species not yet determined.

The Kolymullays are shown in sheet 79 of Indian Atlas.

We feel much indebted to Mr. Foote, for his very interesting account of the Kolymullay or Chendamungalum Hills. We have been anxious to obtain further information regarding an attempt made some years since by the civil servants of the Trichinopoly district, to utilise these hills as a hot weather retreat. The experiment, we have been informed, proved unsuccessful, all the residents having suffered more or less from fever. The Collector of Trichinopoly was applied to for information on this point, but up to the date of going to press, no reply had been received from that gentleman.

Although the recent experience of Messrs. Foote and King prove, beyond doubt, that malarious influences are at work, during certain season of the year, on the Kolymullay Hills, there can be no question but that their unhealthy condition would be materially improved, by the clearing of jungle and extension of cultivation.

The facilities which these hills afford for storing large quantities of water for irrigating the arid plains of Trichinopoly, appear to be very great, and well worth the attention of Government or of private "Irrigation Companies" as a field of profitable enterprise.

We would remark here, parenthetically, that the rule proposed by Mr. Dempster for testing the intensity of malarious poisons, is not at all applicable to the hill ranges of Southern India. The hill natives, Mr. Foote tells us, are a healthy-looking people, and the children show no signs of enlargement of the spleen. The Mallayalis residing on the Shervaroys are likewise free from all appearance of malarial poisoning. In the Anamullay Hills the "Karders" and "Mulcers" who inhabit them, appear to be fever proof. They are strong, hardy, and active, while living in situations where it would be fatal for an European, or for a native of the plains to pass a single night—strange to say these people only suffer from fever when they visit the low country. It is evident that our knowledge regarding the causes of fever in hilly regions is not so exact as is desirable, and that much remains yet to be made clear by future investigators.—Ed. *M. Q. J.*

Dr. Bidie's Report on the Hill Fort of Kondaveed.

I have the honor to report for the information of the Principal Inspector General, Medical Department, that I lately visited an eligible site for a sanatarium, on a hill in this district.

The hill in question is one of a range called Kondaveed, and is situated about 12 miles to the south-west of the station of Guntoor. It has for some years been resorted to, during the hot season, by officers in the district, two very comfortable bungalows having been built by Mr. Rhode and Mr. Newill, when stationed in Guntoor.

Leaving the station to proceed to Kondaveed, the traveller passes along the Bellary road, and after a journey of 10 miles, through flat, dreary plains, reaches a tract of country studded with steep rugged hills, some of which are of considerable height. Having proceeded a couple of miles farther he leaves the Bellary road, and gets into a rough winding bridle path, which passes over uneven rocky ground, covered with a tangled growth of shrubs. Amidst the mazes of this jungle the ruins of a large Hindoo temple are passed, some of its pillars are still standing, and there is a finely carved bull of large size, much defaced by chips knocked off about its head, on the ground. At length the foot of a steep hill is gained, and far up its side, in a gorge between two lofty peaks, a grey wall of masonry is descried, standing out in bold relief amidst the green jungle. This is part of the defences of the Fort of Kondaveed, inside which the two bungalows are located.

The road up is winding, rough, narrow and steep, and the

traveller during his progress looks down on his left, into a deep, picturesque glen. The pathway is made entirely with large uneven stones, worn smooth, and walking is rather difficult and tiresome. After an ascent of ¾ of a mile, the massive wall, seen from the foot of the hill, is encountered, and the traveller passes inside by a narrow gate way.

The fortifications have been built more in accordance with the capabilities of, and to meet the demands of the locality, than with much regard to scientific construction or disposition. The hill is crowned with four lofty, craggy peaks, which are tied together, by the line of fortification, running right over the summit of each in succession. Some of the heights are surmounted with bastions. It must have been a place of great strength and extremely difficult of construction, as the wall often runs up a smooth precipice, that it would be difficult for a cat even to scale.

Surrounded by the four peaks is an irregular, oblong hollow, the surface of which is very uneven and strewed with stones of all sizes. The unsightly appearance and heat from radiation, that these would occasion, are obviated by a luxuriant growth of shrubs.

Water Supply.

Towards the southern extremity of the hollow there are two small tanks, one of which has a bund of masonry, in excellent preservation. There are also several wells of good water.

Buildings.

All over the hollow, and in other places close behind the fortifications, there are the ruins and foundations of numerous small houses, shewing that a large population must have at one time been resident there. Near the margin of one of the tanks, but well elevated on eminences of gneiss rock, stand three empty buildings in tolerable repair, each measuring 90 feet, by 35 feet. The walls of these have been built with rough dressed stone, and are very thick and strong. Their roofs are flat, and consist of long slabs of stone covered over with a thick layer of chunam, as is usual in terraced roofs, and resting on carved stone pillars. These buildings could, at a very small cost, be made fit for the reception of sick soldiers. Tiles might be made on the spot, and there are plenty of bamboos within 100 yards of the tank. Larger timber would require to be brought up the hill. Good doors and glass windows would

be necessary. The two bungalows already referred to, stand well up a slope, near the centre of the hollow.

Nothing could be more beautiful than the scenery that meets the eye in all directions, and there is an air of wild grandeur in the rugged peaks that form the natural battlements of the fort, as well as in those that soar up into the clear sky in the distance. Flowering shrubs and curious festoons of gay creepers hide the nakedness of the grey gneiss rock below, and every crevice of the giddy peaks, into which a few drops of moisture can percolate, sends out its minature tree or shrub. Such scenery, after a residence on the plains, cannot but have a most exhilarating effect on the spirits of an invalid, while it will entice him to indulge in exercise by following one of the many little foot paths that proceed in all directions.

Roads.

Two paths lead up from below to the fort. One is very steep; the other is constantly traversed by cattle, and visitors are carried up along it in their palankeens; it would therefore be quite practicable for bullocks, with back-loads, to carry up supplies of provisions along this route.

Means of obtaining Provisions.

The large village of Kondaveed is situated immediately at the base of the hill, and abundance of provisions are procurable there at moderate prices.

Elevation, Temperature, &c.

I was unable to carry up any instrument to enable me to calculate the height of Kondaveed, but I believe that the hollow that has been described is at least 1,000 feet, above the level of the sea. One great advantage is that the sea breeze visits the hill, as it is only separated from the coast by a flat expanse of from 30 to 35 miles in extent. The temperature is in general about 4 or 5 degrees lower than on the plains, but there is a feeling of freshness and salubrity in the air, quite indescribable, but very appreciable and invigorating.

Physical aspect, &c.

The Kondaveed hills rise abruptly from the flat plains that surround them on all sides, and present in their outline that bold and irregular aspect, characteristic of primary formation. They are chiefly composed of gneiss, with disrupting masses of a dense, dark granite. Their surface is also covered with stones, and huge detached pieces

of granitic rock. The hills are steep and rugged, and present numerous examples of those abrupt precipices and deep wild gorges, that abound in primitive districts.

Characteristic Vegetable Productions.

The luxuriant growth of shrubs and creepers has already been referred to. Inside the fort specimens belonging to the following *genera* were found; *Bauhiniæ, Cassia, Bambusa, Ipomea, Vitis, Anona, Nymphæa, Euphorbia* and *Adiantum* (Candalum Roxb). In a pretty garden, attached to the bungalows, there is a specimen of the *Vitis Vinifera* which looks healthy, but does not bear fruit in consequence of mismanagement.

The following are a few of the species that may be met with, and those printed in italics may be regarded as characteristic of the vegetation on the higher parts of the hills.

Anona squamosa.
Poinciana pulcherrima.
Bauhinia tomentosa.
Stylocoryne Webera.
Euphorbia antiquorum.
Commelyna Bengalensis.
Bambusa arundinacea.
Andropogon Martinii.
Adiantum caudatum.
Acrostichum radiatum.
Nymphæa stellata.
Capparis horrida.
Cochlospermum gossypium.
Zizyphus jujuba.
Semicarpus anacardium.
Mucuna prurita.
Abrus precatorius.
Cassia auriculata.
,, sophera.
Cathartocarpus fistula.
Butea frondosa.
Terminalia chebula.
Hemidesmus Indicus.
Strychnos potatorum.
Solanum verbascifolium.
Martynia annua.
Argyrea speciosa.
Andrographis paniculata.
Asteracantha longifolia.
Cicca disticha.
Asparagus sarmentosus.
Andrapogon Schœnanthus.

The flora chiefly consists of annuals and other plants flowering during the hot moist months of the year. Only those useful, or characteristic of the flora, have been mentioned.

Characteristic animals.

In the bamboo jungles outside the fort, there are immense numbers of the *Pavo cristatus*. There are a few specimens of the *Felis pardus*. The *Sus scrofa* is to be met with in every gorge leading down to the plains, and during the day hides amongst the stones in dense dark jungle. The *Hystrix leucurus* seems to be abundant, and

is caught by the natives for the sake of its spines. The *Mains pentadactyla* is sometimes met with, and exhibited as a curiosity in Guntoor and villages.

At the distance of about ½ mile from the south-east angle of the fortifications, there are several slopes and small vales, at a much greater elevation than the interior of the fort. These are to a considerable extent covered with bamboo jungle, the soil being of a light sandy nature, and almost completely free from stones. This locality is far more freely exposed to the sun and wind than the interior of the fort. A rugged pass or glen leads up towards it from below, and along this a road, with an easy ascent for carts, might be made without much trouble. I feel sure that this would be a very good place for the cultivation of coffee or potatoes. The latter root was, I believe, successfully cultivated inside the fort by Mr. Newill, some years ago. Indeed were it not that there are already buildings inside the fort, I should have no hesitation in saying that this would be by far the better site for a sanatarium.

G. Bidie, M.B.

Guntoor, 1860.

Captain Mullins' *Notice of the Fort on Udiagiri Droog, in the Nellore District.*

(From the Madras Journal of Literature and Science, No. XI., New Series.)

This mountain is a very extraordinary one, standing out about 10 or 12 miles to the east of the line of mountains dividing Cuddapah from Nellore. The height of the crown varies from 1,800 to 2,800 feet above the sea, and it has been, and in fact is, a place of great strength. About 9-10ths of the hill is rendered inaccessible except by the three or four paths communicating with the low country, by precipices varying from 400 to nearly 1,000 feet in height, and every path is defended by several lines of fortication aided by horse shoe towers, which built upon every rock commanding the roads or rather steps, render it a very formidable place to attack. The northern part of the hill is lowest, and on this side is the principal approach, which consists of a flight of steps running along the face of a deep ravine, and commanded by several towers and many lines of rampart and bastion. Within the fortifications is a small village. The southern or highest part of the hill is connected with the northern by a narrow way, flanked on either side by preci-

pices with precipitous paths to the low country on the east and west sides, and here again the fortifications are very numerous, though not in such good repair as on the north. This southern hill is the highest, and from within the fortifications which enclose it, there is only one path to the low country, constructed almost entirely in masonry steps along the face of the precipices on the west side. This stair case is a most extraordinary work, taking advantage of every mass of rock which could give it some support and zigzagging along and under overhanging cliffs, many hundred feet high, while the sheer drop from the edge of the steps is in many places 100 to 150 feet. These stairs lead to a lower line of ramparts on the west side, within which the principal supplies of water are found. The climate on the top of the hills is delightful, being about 15 degrees cooler than Udiagiri itself; the water is most excellent, though difficult of access from the higher levels, while the hills appear from the accounts of the villagers to be entirely free from fever at all times of the year, and the water is celebrated all over the district. Some of the views are most admirable, and it is strongly recommended that the Government photographer should spend a fortnight there in taking views of some of the fortifications, and of the overhanging cliffs, precipices, and ravines.

The hill is almost entirely composed of hornstone,* a few pieces of new red sand-stone were picked up, but the guides said there were no quarries of it, and that it was merely found in detached boulders, here and there.

CAMP KAVILI, 16*th June*, 1859.

The foregoing accounts of the Hill Forts of Kondaveed and Udiagiri, by Messrs. Bidie and Mullins, must be considered in the light of valuable contributions to our knowledge of the resources of the Presidency, as regards Hill Sanitaria. Both appear to be well adapted for the residence of Europeans, during the great heat of the plains, and to be free from malaria at all seasons. Unfortunately, these hills are so far removed from any Military post of importance, that it would be difficult to utilise them as sanitaria.

Now that the waste lands of India are to be sold, it is but right that all information regarding salubrious spots for Europeans to reside in, should be generally made known, and with this view we have published, and shall from time to time continue to publish, all the information we can obtain relating to little known hilly regions in Southern India.—ED. *M. Q. J.*

* Query, hornblendic gneiss ?—ED.

Art. VII.—*A Contribution to Ethnology.* By John Shortt, M.D., &c., &c., Zillah Surgeon, Chingleput.

Man, as the Lord of Creation, forms a subject of great interest to the naturalist, and the study of the physical differences of the sub-varieties of mankind, more particularly those of stature, proportion, and weight, is not only interesting but instructive.

The following tables were drawn out to shew the physical differences between some of the Europeans and natives of the Caucasian and Mongolian sub-varieties of the human species. Although it must be acknowledged that from so small a number of individuals, no very satisfactory conclusions can be drawn, nevertheless it gives a comparative idea of the actual differences that exist between the sub-varieties.

The observations of the Europeans were taken on Board the Ship "Clarence," on her voyage out to India with recruits for H. M.'s Indian army. There were 285 recruits on board this ship, of whom the majority were English and Irish. The measurements of 25 each, of the English and Irish, were indiscriminately taken, as they voluntarily came forward. There being only 23 Scotch recruits, two Scotch officers of the Indian army were taken, to make up the number 25. At the same time the measurements of 25 English, from among the passengers and officers of the ship, were taken.

The height was taken as the men stood bare headed and footed, the measurements of the body were made next the skin, and the men were weighed in their shirts and trowsers. I brought out the necessary apparatus for taking the various measurements, and had recourse to the Butcher's steel yard to obtain the weights. These measurements were taken after the men were out some three weeks, and had settled down to a temporary sea life.

Those of the natives were taken at Chingleput with the same instruments, except the weights, which were determined by a patent weighing machine belonging to the jail. The various castes were got, partly from the inhabitants of the town, and partly from among the inmates of the jail. Errors were carefully avoided in the measurements that were made, both among the Europeans and natives.

The average of 25 Europeans is here given, which shows the difference between them at a glance.

Average of 25 each.	Age.	Height	Circumference of					Weight.
	Years.	Inches.	Head inches.	Neck inches.	Chest inches.	Arms inches.	Thighs inches.	Pounds.
Passengers, &c.	21·16	66·315	22·045	13·25	33·105	9·535	18·54	135·76
English recruit.	21·88	65·43	21·465	13·095	32·97	9·81	18·735	141·56
Scotch recruit..	22·12	66·615	22·	13·22	33·96	9·595	18·545	148·44
Irish recruit...	20·84	65·75	21·91	12·98	33·44	9·705	18·655	140·

The Scotch are senior, and have the greatest weight and height, and the largest chests. The English passengers, &c., have the largest heads and necks. The Irish recruits have the largest arms, and the English recruits have the largest thighs.

The average of 25 natives of various castes, is as follows:—

Average of 25 each.	Age.	Height	Circumference of					Weight.
	Years.	Inches.	Head inches.	Neck inches.	Chest inches.	Arms inches.	Thighs inches.	Pounds.
Brahmins....	21·64	64·64	21·06	11·520	31·25	8·92	16·48	117·56
Hindoos.....	21·48	65·115	20·91	12·751	31·76	8·845	16·36	116·24
Pariahs.....	21·72	64·795	20·805	12·125	31·36	9·25	15·99	110·52
Corovas.....	21·88	64·7	20·82	10·356	31·115	8·955	15·905	104 54
Musulman...	23·8	64·555	20·53	07·	31·33	8·97	16·17	107·2

Here the Brahmins have the largest heads, thighs, and the greatest weight. The Hindoos have the largest chests and are the tallest. The Pariahs have the largest arms and necks, and the Corovas are wanting in every particular.

As the Musselman belongs to the Mongolian sub-variety, he has been left out for the present, and throwing together 100 each of the different sub-varieties—Europeans and

natives separately, we are better enabled to see the difference between them.

Average of 100 each.	Age.	Height.	Circumference of					Weight.
	Years.	Inches	Head inches.	Neck inches.	Chest inches.	Arms inches.	Thighs inches.	Pounds.
European.	21·50	66·275	21·855	13·1362	33·3687	9·6612	18·6187	141·44
Native.....	21·68	64·8125	20·8987	11·955	31·3712	8·9925	16·1837	112·215

Here we see the immense difference that exists between the European and native. The Musselmans do not differ much from other natives, but as they belong to a separate sub-variety, I shall here compare them with Mongolian sub-varieties first.

In the "Indian Annals of Medical Science," No. 10, for July 1858, at page 492 and 498,* the measurements of two Hill tribes of Orissa, of 20 each tribe were given. From the want of means their weights were not taken at the time; however, I shall here take the average of 20 Musselmans of Southern India, and compare them with the Mongolian sub-varieties of Orissa.

Average of 20 each.	Age.	Height.	Circumference of				
	Years.	Inches.	Head inches.	Neck inches.	Chest inches.	Arms inches.	Thighs inches.
Musselman.....	24·7	64·8125	20·55	12·225	31·6875	9·0875	16·3125
Booians.....	30·25	62·375	20·75	11·25	31·50	9·125	17·125
Pathnas.....	31·25	61·50	20·50	12·375	31·75	9·75	17·50

Here the Musselman are tallest. The Booians have the largest heads, the Pathnas have the largest necks, arms, thighs, and chests, and are senior.

* Dr. Shortt on the Medical Topography of Modern Orissa.

I shall now give the average of 60 from the European and Native Caucasian and Mongolian sub-varieties separately.

Average of 60 each.	Age.	Height.	Circumference of					Weight
	Years.	Inches.	Head Inches.	Neck Inches	Chest Inches	Arms Inches.	Thigh Inches.	Pounds.
Europeans.	22·25	66·2604	21·8145	13·20288	33·7333	9·7791	18·7895	144·6851
NativeCaucasian....	22·4	64·966	20·93125	11·9083	31·3625	8·9606	16·3333	114·2666
Do. Mongolian	28·733	62·8985	20·6	11·95	31·0458	9·3208	16·9791	

Here again the European stands No. 1, next follow the Native Mongolian, and lastly the Native Causasian sub-varieties.

In Timb's First Series of "Things not generally known," at page 66, the height and weight of Belgians, French, and English are given, these I have tabulated here.

		Height.		Avoirdupois Weight.
		F.	I.	Pounds.
Belgian (Brussels) and environs.....	Mean weight.	5	$6\frac{3}{4}$	140·49
French (Paris) and neighbourhood.....		5	4	136·89
English (taken at Cambridge).....		5	$9\frac{1}{2}$	150·98
English (Passengers and Officers of Ship "Clarence.").....	The Average of 25.	5	6	135·76
English Recruits.....		5	5	141·56
Scotch Recruits.....		5	6	148·44
Brahmins of Southern India.....		5	5	140·
Hindoos of do.		5	4	117·56
Pariahs of do.		5	5	116·24
Coravas (Tank diggers) of Southern India...		5	4	104·54
Musselmans of Southern India.....	The Average of 20.	5	4	107·2
Booians. { Hill tribes }		5	$2\frac{3}{8}$	
Pathnas. { of Orissa. }		5	$1\frac{1}{2}$	

From this last table it will be seen that the British are superior to most natives in height and weight, and that Europeans in general are superior to natives in every particular.

The English standard for the Foot Guards is 5 feet 6 inches, which the average of Europeans attain in the tables. In India, whilst 5 feet 6 inches is the standard for Mounted Corps, 5 feet 5 inches is that for the Infantry, but it fre-

quently varies according to the emergencies of the service. During the mutiny in 1857, it was lowered to 5 feet 3 inches for the Infantry. In the tables the Brahmins and Parialis are the only classes of the natives of India that come up to the Infantry standard. Our native soldiers of Cavalry and Infantry are generally picked men.

Art. VIII.—*A Brief Account of the present state and prospects of Cinchona Cultivation in India.* By W. E. McIvor, Esq., Superintendent Government Gardens, Ootacamund.

At the request of Dr. Cornish, Secretary to the Principal Inspector General, Medical Department, I have the pleasure to submit the following remarks, for the information of the members of the Medical Service, on the very important and interesting experiments now in progress, of introducing into India and naturalizing the various valuable species of quinine yielding Cinchonas.

The importance of the introduction of these plants to India, was first urged on the late Court of Directors by Dr. Royle, on various occasions, between the years 1843—50. Dr. Anderson also brought this subject before the British public in 1855, and its importance was brought to the notice of the Madras Government by myself in the same year. Our then Governor, Lord Harris, took up the subject, and a correspondence having taken place between the Home Authorities and the Governor of Madras, it was finally determined to attempt the introduction of these valuable plants. Lord Stanley having left office in 1859, Sir Charles Wood, with a zeal which shows his deep interest in the welfare of India, took up the subject, and appointed Mr. Clements Markham to conduct the undertaking. This gentleman was selected, being conversant with the Spanish and Peruvian languages, and possessing an intimate knowledge of the various species of cinchona.

In the early part of 1860, Mr. Markham started on his important mission, having previously arranged the details of the expedition with an intelligence and forethought seldom equalled; so perfectly were his plans formed that failure was rendered almost impossible, and the result has been an unequalled success, in the importation of plants and seeds.

From this expedition we now possess upwards of 5,000 plants at Kew, a number of plants in the West Indies, 840 in Ceylon, on the 28th Septemter last; about 80 plants in Calcutta, and at Ootacamund, on the Neilgherries, about 9,000 plants.

The following are the species introduced, and their respective value per lb. of dry bark, in the London market.

Names of Plants.	Value per lb. of Dry Bark.				
	s.	*d.*		*s.*	*d.*
Cinchona Succirubra, or Red Bark.....	2	6	to	8	9
Cinchona Calisaya, Calisaya Bark.....	2	10	to	5	0
Cinchona Nitida, Genuine Grey Bark	1	8	to	2	9
Species without name.....	1	8	to	2	10
Cinchona Micrantha, Var. Provinciana... ..	1	8	to	2	10
Cinchona Peruviana, or Potade Jallinizo... ...	1	8	to	2	10
Cinchona Lucumæfolia, or Pahudiana of Howard, from Java.....	No value.				

It will thus be observed that we already possess all the most valuable species of the quinine yielding cinchonas.

With this preface I shall now proceed to detail the particulars of the plants under my care on the Neilgherries. These hills offer great advantages for the cultivation of the cinchona, and with the exception of the hills in Ceylon, the locality is perhaps the best which could have been selected in British India. In our first attempts to grow the seeds, on the Neilgherries, we fell into the error of using too retentive a soil, having in this respect been misled by the treatment of cinchona seeds adopted in Java. From our first sowings only from 3 to 4 per cent. of our seeds germinated. I however soon observed that the retentive soil caused the seeds to mould and damp off, and in the second sowing used a much more open soil, and of this sowing from 15 to 25 per cent. of the seeds germinated. In our third and last sowings the soil used was more open still, and of this batch from 50 to 90 per cent. germinated. Immediately germination took place, the seedlings were carefully transplanted into fresh earth, and so successful was this method, that we only lost from damp and accidents out of the whole of our seedlings 15 plants; had our seedlings been permitted to remain in the seed pots, I feel convinced that our loss from damp alone would have averaged 50 per cent.

Of imported plants I received altogether from Peru 463,

which although in rather an unhealthy state at the time of their arrival (8th April 1861), were in the course of two months sufficiently established to bear exposure, and are now in the most luxuriant state of health, being from 3 to 4 feet in height, and some of their leaves measuring as much as 12 inches by 18.

These imported plants have *now produced some thousands by propagation.* Our seedlings have also attained the size sufficient to give wood for propagation, and the first of them have already produced a few hundred plants, and more are daily attaining a size sufficient to enable me to propagate, and we will now, monthly, be able to produce from 2 to 3,000 new plants. It will thus be observed, so far as the increase of the plants is concerned, we may congratulate ourselves on being safe; and this is fortunate as the Governments of Ecuador and Peru have issued decrees making the exportation of cinchona plants and seeds a felony. These new decrees have, however, caused us some disappointment, as we expected a supply of seeds in November last of the Cinchona Condaminea, and I now learn from Mr. Markham, that in consequence of the above decrees the seeds cannot be procured. Mr. Howard has, however, with his usual liberality placed at the disposal of the Indian Government three plants of the most valuable variety of this species, and these are shortly expected to reach this country.

We learned in the beginning of our experiment that the Dutch in Java had fallen into the very serious error of cultivating, to a large extent, a quite worthless species of cinchona to which they had erroneously attached the name of a well known and valuable variety. This discovery indicated caution in our part with reference to the value of our plants, and the correctness of the names attached to them, and an investigation of this subject, also under the direction of Mr. Markham, has led to the most satisfactory results. The barks from the trees which furnished our plants and seeds have also been submitted to Mr. Howard for analysis, in order to guard against the possibility of our cultivating worthless kinds, and this gentleman's report establishes, beyond doubt, that our species of cinchonas are of the most valuable kinds known in commerce.

Before proceeding to form a correct judgment on the kinds it would be most profitable to cultivate, it was not only necessary to ascertain their respective values per lb. of dry bark, but it was important to know the relative thick-

nesses of the bark, produced by the various species, as this would materially affect the yield per acre. The result is as follows—

In Cinchona Nitida.....	The bark occupies 1-10th of the diameter of the section of the stem.			
In Cinchona Succirubra.....	Do.	1-12th	of	do. do.
Do. Peruviana.....	Do.	1-12th	of	do. do.
Do. Calisaya.....	Do.	1-15th	of	do. do.
Do. Micrantha.....	Do.	1-20th	of	do. do.

Thus, should all the species be found to thrive alike, the Succirubra would be the most profitable plant to grow on account of the high price of its bark, and comparative thickness of the same; the others will follow in the same scale.

This species (Succirubra) has taken to this climate in a manner which promises great success. In fact our plants have attained far greater luxuriance than is usual in their native localities on the Andes.

The size of the largest leaf is given at $7\frac{1}{2}$ inches by $5\frac{1}{2}$ inches in their native localities, while our leaves measure, as before stated, 12 by 18 inches. In speaking of this species Howard says at page 13, "The finest sample in my possession of C. Succirubra bark, contained 3·91 per cent. of alkaloids, which sold for 8*s.* 9*d.* per lb. The quill of the same parcel yielded 3·6 per cent. of alkaloids. It thus rivals the best Bolivian barks in the quantity of alkaloids it contains; and fair average samples are valued in the market at more than twice the price of Calisaya bark."

All the other species grow equally well here, but for the reasons above mentioned, this plant (the red bark) has had our special care and attention in propagation, and we have now about 5,000 plants of this species.

It is proposed that by July next we plant 150 acres of cinchona plants at eight or ten feet apart, or say in round numbers 120,000 trees. Of this number about 70,000 will be of the red bark (C. Succirubra). At present the majority of our plants are in propagating houses, about 3,000 only being planted in the open air; I may mention that the plants in the open air, are in equally as fine health as those in the propagating houses, although we have not the power of forcing them to so rapid growth. This system of forcing is very important to us, in the mean time, as it gives us a large number of plants which otherwise could not be procured.

The leaves of all our cinchona plants here are exceedingly bitter to the taste, thus indicating the presence of the alkaloids, and it has occurred to me that these leaves, which naturally fall off the trees in succession, may be turned to account by being imported to England, as a substitute for hops in the manufacture of beer. Leaves of the cinchona, so far as I am aware, do not produce quinine, but they have been ascertained to contain as much 0·230 per cent. of kinovic acid. These leaves would no doubt prove a healthy ingredient in beer, but the question is, would their bitter preserve it as well as hops?

Another subject to which our enquiries have been for some time directed without being able to arrive at quite a satisfactory conclusion, is the elevation and amount of exposure best suited to the growth of the plants, and the development of their alkaloids.

Dr. Karsten, in writing of the barks of New Granada, says: "But the cinchona with the small fruit, scrobiculate leaves, and rich in alkaloids, does not dwell in this horizontal expanse, but is confined to 11 degrees north and south of the centre point of their district of Loxa. It descends only to a height of 2,000 metres (6,170 feet) above the sea, from the cold summits of the mostly snow-capped mountains, where it sometimes reaches the upper limits of the growth of trees, *i. e.*, 3,500 metres (10,797 feet). Beyond these boundaries the proper cinchona, *C. Australis, Wedd.* occupies the southern out-posts, and the *C. Tucuyensis, M.* and the *C. cordifolia, Mut.* the northern, both without scrobicules in the leaves, and having large capsules, and too poor in alkaloids to furnish their bark for trade." The red bark, however, is an exception to this, as it is said to grow and produce good bark as low as 4,000 feet and as high as 6,000, but probably it produces the best bark at higher elevations, and Pavon says this species also flourishes in cool situations "locis frigidis."

Every traveller on the Andes and also the bark collectors are decided in their opinions that the "higher and colder" the place of growth, the more valuable is the bark. On this subject Karsten says—"No practised cascarillero can hope to find a *cascarilla fina,* as the most effective medicinal cinchona is called, until the region of the *cascarilla bobo* (of the *C. cordifolia,* &c., as well as the *Ladenbergian cascarilla blanca and rojah)* is passed, by ascending the declivity of the mountain.

With reference to exposure the evidence of both the collectors and purchasers of bark seem to establish that a considerable amount of exposure is necessary—thus we are told by Poëppig that the bark collectors "in the cinchona forests of Huanuco, were very particular with respect to local differences, for large speculators gathered only the bark growing on steep declivities, or mountain ridges. All stems were rejected, even when they stood in the very promising groups (Manchas), if the soil was damp, and the valleys warm and without a current of air. Therefore there was a great difference even in the price of the harvest of a small district, for the higher and colder the situation, the more valued was the bark."

We also learn that in the London market the value of the bark is much depreciated of the epidermis (or surface) is not covered with lichens, (their presence being a sure sign of exposure, and their absence the reverse.) Poëppig and Karsten are the greatest modern authorities. They moreover thoroughly explored the cinchona region, and made themselves acquainted with the whole of the operations of bark collecting.

There are, however, different opinions on the subject of exposure ; and different practices also. I am aware that in Java Dr. Junhuhn has followed a different course in growing plants, but this gentleman, it would appear, has recently changed his opinion, as the practice now directed to be followed in Java, is that of cutting down all the trees in the vicinity of the plants. The remarks on this subject have been made with the object of eliciting criticism, which may serve to put us right in matters we may not fairly understand, or may have misconceived.

Government Gardens, Ootacamund,
December, 1861.

We have to thank Mr. McIvor, for his very interesting account of the Cinchona cultivation on the Neilgherry Hills. The success of the experiment seems to be established beyond a doubt, and a few years hence there is every reason to hope that India will not only be able to supply her own wants, but *in a position* to export large supplies of the best species of Cinchona Barks. The Madras Government may, we think, be congratulated on deciding to place the controul of such an important experiment in the experienced hands of Mr. McIvor. In another place we reprint a very interesting report by Mr. Pritchett detailing the mode of collection of seeds and plants in Huanuco.—Ed. *M. Q. J.*

Art. IX.—*Further Remarks on Delirium Tremens.* By J. L. Ranking, Esq., 2nd Regt. E. L. I., Trichinopoly.

My letter dated the 13th ultimo,* disclaiming any intention of disparagement of, or reflection upon, the 'views,' 'practice' or 'skill' of my predecessors generally, and expressive of my sincere regret that my paper on Delirium Tremens should bear such a construction has, I trust satisfactorily, disposed of the *personal* bearings of the question.

It remains, however, for me to enter into the particulars of certain errors alluded to in that letter—errors which affect the *numerical* statements in my paper.

I commenced the scrutiny of the case books with the full belief that those I examined commenced with the period given, viz., April 1858, whereas I now find that four (4) volumes—Nos. 91, 92, 94 and 95—escaped observation, owing to my having sent to the hospital for them, instead of selecting them myself.

Those four journals contain additional cases, which invalidate the statement made at page 229, inasmuch as the number of cases now found recorded amount to 78.

Subjecting these additional cases to the same test, that of the definition adopted at page 228, I find that the conclusions already drawn are not materially affected, a large proportion of the cases not being, in my judgment, sufficiently marked to be admitted as cases of so grave a disease as that under consideration.

I have further to remark that I omitted to state that the cases were not selected from the records of the 2nd E. L. I. only, but from those of the Artillery also. The sick of both these Regiments are treated in the same hospital, and being a joint charge, the necessity of stating that the cases were derived from both sources, did not occur to me.

Again, the figured statement given at page 230 requires correction.

It purports to be taken *entirely* from the *Register*, whereas the figures were taken from the *Annual Return*, but in as much as the latter is compiled from the former, there should be no error here. If there be any, it does not rest with me, but with the compiler and framer of the return.

On careful re-examination of the journals from January

* This communication will be found in the 3rd part of the present Number.—Ed

1858 to April 1861, I find 78 cases—74 of which are recorded in the Case books of the 2nd E. L. I., and 4 in those of the Artillery. With the exception of 5 cases occurring in the earlier part of 1858, and which I cannot (owing to the abbreviated style in which they are recorded) fairly decipher, I have subjected the whole to analysis—a process which I conceive I am perfectly justified in adopting, and which involves in it no reflections or animadversions.

These cases bear sub-divisions into the following classes :—

1st.—Those presenting tremor with gastric irritability and insomnia, but *without delirium, hallucinations, spectral illusions* or even *horrid dreams*.... 30

2nd.—Those complicated with *dreams and dread*, still *without distinct hallucinations, spectral illusions*, or *delirium*..... 9

3rd.—Cases *with hallucinations and spectral illusions, without* more decided delirium..... 12

4th.—Cases with marked delirium..... 22

These latter cases I might again sub-divide—shewing the *character* of the delirium, the *extent* of *its duration*, with a view to distinguish between *delirium a potu, maniacal delirium*, and that peculiar, *restless, busy, "chattering"* delirium, which is so peculiarly characteristic of true delirium tremens.

The cases then, as they now stand, comprise 39, which present neither hallucinations nor delirium, and 34 with hallucinations or more or less marked delirium, with one death.* The hallucinations and spectral illusions were, in some cases, transient and nocturnal only, and the "delirium" was in some of that character known as delirium *a potu*—in others it bore more the character of maniacal delirium.

These cases being thus admitted and corrected, I leave it to the profession to decide whether I contend for too restricted a definition of the disease.

It has been hinted in the columns of a newspaper that the admissions under the head of "Ebrietas," alluded to in my paper as having occurred in my practice, were instances of "brawling drunkenness." This is not the case. They were all cases requiring treatment in hospital, and not instances of *simple drunkenness*. As in past times, so now, the guard-room is made the place of reception of drunken men, who are sent to hospital only when their cases present features requiring medical aid.

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* This death did not occur during Mr. Ford's incumbency.

I have dwelt much upon the disproportion existing in the figured statement given at page 230 between the admissions from ebrietas and delirium tremens, and I cannot avoid touching upon the subject again.

What I contend for is, that but a small proportion of drunkards, of men addicted to habitual drunkenness, get delirium tremens.

The drunkard is protected in the same (unascertained?) way that the majority are protected from the contagion of fever and other diseases. It is only a small percentage, for instance, of those exposed to the morbific influences or agencies (whatever they may be) constituting the cholera poison, who are attacked with the disease. The larger proportion of drunkards, I believe, escape delirium tremens, while as regards military life, that is the life of the European soldier, there are so many obstacles in the way of his carrying out his habits of intemperance to such an extent, and through such a prolonged period, as to subject him to the risks of the disease.

It is admitted by Military Surgeons that the men most liable to attacks of the disease, are those who escape the checks imposed by parades and frequent roll calls, such as men employed in civil occupations—as armourers, tailors, Quarter-masters, clerks, &c., &c.

The inference then to my mind, and which is corroborated by my somewhat limited experience is, that our admissions under the head of Ebrietas must always bear a high ratio to those from delirium tremens; provided always that care be taken to exclude from the latter, all cases which do not present some form of that mental disturbance which constitutes *delirium.*

I therefore contend, that if we desire to accumulate reliable statistics of this disease, we must establish a distinct and defined line of demarcation between it and those affections resulting from excess, which, however near they may *approach* it, or threaten to *pass into it*, still do not *constitute* it, and consequently find admission into our returns under the head of Ebrietas.

At the time I wrote my paper I had no statistics to guide me, as to the ratio which cases of ebriositas bear in other hospitals to delirium tremens, but I have since found a table in that comprehensive work of Dr. Chevers, "On the means of preserving the health of the European Soldier in India," which establishes the position I have above taken

up. He gives a table of admissions per 1,000 of mean strength in Bengal, from the years 1846-47 to 1853-54 inclusive, in which they vary from 51·0 per 1,000 in the case of ebrietas, and 30·9 in that of delirium tremens, to 29·2 of the former, and 5·6 of the latter. The admissions each year from ebrietas being much in excess of those from delirium tremens.

In regard to the average mortality attending the disease in India, I would refer to Dr. Morehead's work "On Diseases of India," from which I gather the following information.

During five years—from July 1838 to June 1843—237 cases came under treatment in the European General Hospital at Bombay, with 41 deaths. The mortality there equalled 17·8 per cent. Dr. Morehead explains that the death rates varied in different years, being as high as 20 per cent. and as low as 7. In a foot note, alluding to the succeeding 10 years, he informs us that there were 553 admissions, with 38 deaths, or a mortality of 6·8 per cent.

The courtesy of the Principal Inspector General of the Department having placed at my disposal (not, however, with any reference to the question under controversy) the records of the 2nd Regt. E. L. I., since its formation in 1839, I am enabled to give a table of the total admissions from delirium tremens for the period of 21 years, viz., from 1840 to 1860 inclusive. The table is appended, and we cannot but be struck with the facts elicited; viz., that no less than 519 cases are recorded without a single death. Under the head of ebrietas, however, two (2) deaths occurred, while certain deaths from dysentery are reported to have been "*complicated*" with delirium tremens.

If then the disease be judged by the statistical data furnished by the records of this Regiment, we can come to no other conclusion than that so far from being a fatal disease or dangerous to life—as statistics from other sources establish, —it is one more surely brought to a successful termination, and attended with a smaller mortality than any to which the European soldier in India is liable.

How far this agrees with published statistics, and with individual experience, I leave to the profession.

We have then no longer the preponderance of successful cases treated without alcohol and opium, which the statistics at my disposal at the time I penned my paper led me to suppose; but a very large series bearing testimony to the efficacy of very opposite modes of treatment—opposed not

only to that which I have advocated, but to each other, for it is worthy of note, that at one period, extending from 1850-51 to 1854-55, Dr. Graves' treatment was followed, while later, a system was adopted, which I can best explain by using the words of the reporter, who, while he recognises them, will hold me justified in quoting them, which I do solely to shew that very opposite methods of treatment were followed with '*uniform success*' in both instances—" I never administer Tartar Emetic, believing the mucous membrane of the stomach to have been irritated enough, seldom Ammonia in any shape, always the Liquor Opii. Sedativ. in 3 i. and 3 iss. doses."

This uniform success under such opposite principles and modes of treatment opens out a wide field of inquiry. Does the marked immunity from death in the 2nd E. L. I. pertain to the European soldier generally in this Presidency under similar circumstances, viz., continuous service in garrison?

Is it that the soldier while at Regimental duty, owing to the complete surveillance exercised over him by frequent roll calls and parades, as before suggested, is exempted from liability to the *graver* forms of the affection, that he is prevented from indulging in those prolonged and persistent excesses, which furnish the worst and most intractable cases?

What is the experience of Medical officers of European Regiments serving in this Presidency?

The facts brought to light, it must be admitted, are of interest and importance.

The statistics of the disease require to be re-investigated as applied to this Presidency, and if Medical officers will publish in the pages of this Journal the result of the examinations of their Regimental records, I shall have no reason to regret, having written a paper, which although it has placed me in a 'false position,' and laid me open to the charge of invidious reflection, was written in an honest desire to arrive at truth, and without the slightest intention of disparaging, in the remotest degree, those who preceded me in the medical charge of the 2nd E. L. I.

TRICHINOPOLY, *December* 1861.

P. S.—Since writing the above I am indebted to the kindness of my friend Dr. Pringle of the Madras Fusiliers, for a table which I append to be placed in juxta-position with that compiled from the annual returns of this Regiment, the 2nd E. L. I.

Dr. Pringle's table is eminently suggestive. I shall, however, confine myself to directing attention to the death rate attached to the disease as it has occurred in that Regiment—19 cases with 3 deaths gives a mortality of 15·79 per cent.!

Admissions and Deaths from Delirium Tremens and Ebrietas, from 1840 *to* 1860.

2nd E. L. I.						Madras Fusiliers.				
Years.	Delirium Tremens.		Ebrietas.			Years.	Ebrietas.		Delirium Tremens.	
	Admitted.	Died.	Admitted.	Died.			Admitted.	Died.	Admitted.	Died.
1840	0	0	0	0		1851-52	1	0	2	0
1841	0	0	0	0		1852-53	1	0	0	0
1842	1	0	0	0		1853-54	6	1	6	1
1843	2	0	1	0		1854-55	2	0	4	1
1844	2	0	0	0		1855-56	2	0	0	0
1845	1	0	0	0		1856-57	Records burnt at Cawnpore.			
1846	0	0	0	0						
1847	0	0	8	0		1857-58	3	0	2	0
1848	4	0	53	0		1858-59	7	0	0	0
1849	39	0	29	0		1859-60	15	0	5	1
1850-51	44	0	24	1		1860-61	13	0	0	0
1851-52	102	0	68	0						
1852-53	78	0	121	0		Total...	50	1	19	3
1853-54	82	0	113	0						
1854-55	55	0	78	0						
1855-56	20	0	50	1						
1856-57	0	0	5	0						
1857-58	13	0	26	0						
1858-59	33	0	23	0						
1859-60	28	0	44	0						
*1860	15	0	20	0						
Total...	519	0	663	2						

* 9 Months only, to 30th December.

Art. X.—*Explanatory Remarks on Delirium Tremens, with reference especially to an Article which appeared in the last Number (No. VI., Vol. III.,) of this Journal, on the "Therapeutics" of the same Disease.* By Surgeon Major Ford, F. R. C. S., 17th Brigade, Royal Artillery.

Surgeon Major Ranking having intimated his intention of rectifying the errors into which he fell, in his paper, published in the last Number of the *Madras Quarterly Medical Journal*, on the Therapeutics of Delirium Tremens—so far, at least, as these errors were comprised within the official years 1858-59, 1859-60—I need do no more than append the following table of delirium tremens cases treated by me and others during that term with, principally, opiates, and offer a few justificatory remarks bearing directly on some points of Mr. Ranking's article. I may premise that the term of my medical incumbency of the 2nd E. L. I., or H. M.'s 105th Regiment L. I., extended from the end of July 1858 to the beginning of Aug. 1860—fully two years.

It has been asserted that, because the cases of ebrietas exceeded on the whole but slightly those of delirium tremens, fair grounds of assumption existed, that want of discrimination in classifying the diseases mentioned caused this disparity in their admissions. In refutation of such a notion, I have only to remark that I, as a rule, excluded all cases of drunkenness from the hospital wards, for very obvious reasons, unless indubitably requiring prompt remedial measures. The effect of such a practice, rather than invalidate the entries of delirium tremens, would, if comprehensively viewed, tend more effectually to exclude doubtful cases. By it, the sergeants and other non-commissioned officers were well aware that it was useless to imagine the guard-rooms could be thinned of turbulent drunkards (and they, the non-commissioned, knew perfectly well the simple signs of drunkenness, sottishness and crapulousness) by taking them to the hospital, as it was certain they would be sent back to the guard-room. It occasionally happened, however, that, perhaps, during detention in the guard, especially when a Sunday intervened, unusual symptoms would be developed, which attracted attention, and the patient would be admitted in the state characterised by incipient "horrors."

In recording the cases on admission, I need scarcely avow, the idea of publication never entered my thoughts, conse-

quently it is quite possible that, if adjudged by the entries alone, some items of the unusual definition (if all the symptoms enumerated are expected to be present at one and the same time) of delirium tremens, by which Mr. Ranking wishes to test the validity of such cases, may be found deficient—not deficient, may be, as the case was presented to my or my assistant's observation, but omitted to be placed fully on the record on admission, or subsequently, if such symptoms transpired in course of treatment. It is enough for my purpose that they were diagnosed by others and myself as samples of delirium tremens in the incipient, developed, or fully developed conditions or stages, in all sincerity, having at the time no ulterior view to serve.

Had the aim been to print such cases the details, doubtless, would have been given more amply and more exactly, but they then unquestionably would have lost, in a measure, their present genuine character. Any one glancing over the appended table, will be readily satisfied that no cases of ebrietas needed either the average detention of some 10 days in hospital, nor such a liberal use of Tincture or Liqr. Opii. The natural belief would be, that circumstances *did* exist warranting this free employment of opiates, although these circumstances may not perhaps be disclosed in all instances by the journal entries. However, there are the cases, as recorded, open to scrutiny, and it would seem infinitely more logical to accept *them* implicitly as genuine, than to receive without murmer or question the 163 cases, as Mr. Ranking does, treated so successfully by another method by Doctors Dunglison and Peddie, the records of which he has *not inspected*, nor is he aware that any particulars respecting them exist. He ought consistently to distrust all, the records of which are not offered for examination,—or receive all cases as denominated by the observers : he enjoys no privilege of selection.

I may here state, that the journals containing the cases given in the table have been examined by a Medical officer in no way biassed in this matter, and he has pronounced 20 to be fully developed cases, the greater part of the remainder bordering on full development, and the few remaining in the incipient stage, and that therefore all were fairly recordable as delirium tremens. For this character of the cases I contend, although possibly, could I have exercised any display of prescience, I might have regarded differently some of the latter group—that is, those cases that did not, under treatment, develope themselves into the vaguely expressed "severe ones" of Dr. Peddie.

Mr. Ranking is indisposed to yield to my cases the above character. He regards the disease as a very grave one, being upheld in this view chiefly by his own experience, but I imagine very few practical men will concur with him. (I here presuppose that we both refer to the identical disease, Delirium Tremens, and not in any way to Phrenitis.)

It is not my purpose to enter here into any explanation of my views of the rationale of the treatment of this strange disease by the Tinctura Opii. or the Liquor Opii Sedativus in particular—to which latter preparation I give preference invariably: I used the Tinct. Opii only when I had not a sufficient stock of the Liquor in store. Nor do I intend to divide or subdivide the disease into stages or classes. The observant practitioner will better treat this disease in accordance with such phases as any individual case may present to his apprehension, than he will do if guided by the most vivid word-painting of symptoms, and the most elaborate mapping out of stages by the greatest masters in the medical world. For myself I may confess, that I have ever found the gradations too irregular and too ill-defined to permit of distinct and uniformly satisfactory divisions: the insomnolency, and tremors of tongue or hands and arms, for instance, continue throughout the attack, and are, in my opinion, as much characteristic of the malady as the transient withdrawals of reason at an earlier or later period, as the case may be.

It is a fallacy to suppose that the pulse is always accelerated;—and it may indeed be dismissed as a symptom of any special value in diagnosing this disease, when the recent history of the patient can be obtained. In one of the Artillery journals I find a case of delirium tremens where the pulse is entered as 61, and at the time the patient was convalescing it is set down as 60. This is no isolated instance of non-acceleration, as my records of the 2nd E. L. I. and Artillery at Trichinopoly can attest.

It may delight some to divide this, and all diseases, in truth, into stages of progress, but I have no particular leaning in that direction. All such divisions are more or less arbitrary, and it is just as feasible to partition this disease into 6 as into 3 or 2 stages. I conceive that the changes are expressed only, and not defined by the term progress. In corroboration of this view let any one study the writings of authors on the very disease we have under discussion, or judge for himself in hospital wards, taking uncompromisingly for his motto, "*Nullius addictus jurare in verba magistri.*" The most intelligible delineations of this malady are from

those authors who have left the disease in its unity, and attempted no allotment of it into stages or species. Practically, the physician, as it were imperceivably and unconsciously, marks to himself the progress of disease, untrammelled by rigid boundary definitions, which subserve only controversial tendencies and purposes.

It might be inferred, from the tenor of Mr. Ranking's paper, that only Liquor Opii Sedativus and Brandy were employed—the former fearlessly till sleep was obtained, and the latter uncombined with any aliment. This conclusion would not represent the facts—such was not the undeviating practice, by any means. On many occasions the opium was omitted during the day, and the full dose of a drachm or a drachm and a half administered, with or without brandy, at bed time, when all was still, and repeated, perhaps, at midnight. The brandy was mixed with arrowroot congee, and broth was allowed, when retainable by the stomach, from the first. Ammonia—the Spts. Ammon. Arom. was after combined with the preparation of opium, and blisters to the nape of neck, removal of hair of head, leeches to forehead and temples, sinapisms to the epigastrium, and the cold douche were found to be invaluable accessories in the successful management of some cases.

I will not stop to enquire how it happens that this disease is more frequently met with in some localities than in others—and why the mortuary rate per cent. should be so remarkably unequal at different stations. Here at the Mount, for example, where there is a large force of European Artillery, and many European pensioners, I have witnessed but two cases during the 17 months I have been here in charge of the whole, and only some six cases appear to have occurred within as many years! No doubt these peculiarities will receive elucidation at some future period. The *post hoc* and *propter hoc*, too, in regard to the action of therapeutic agencies in this disease, may be appropriately left to those who cultivate a taste for casuistical enquiries. Since the birth of the world success has been an unassailable criterion, however.

In conclusion, I have only earnestly to solicit that, if any comparative analysis be conducted of the results of the treatment of delirium tremens by chiefly Laudanum and Battley's sedative solution, and that by other modes, the fact shall not be lost sight of, that my cases are on record and patent for investigation,—an *experimentum crucis* therefore which all data should undergo, to assure weight and confidence to the deductions of those who advocate a different mode of treatment. To scrutinize *frustatim* one set of

observations because they happen to be on record, and to receive all other *in cumulo*, as granted, *without* such collateral vouchers, is manifestly unfair in principle, and unsound in argument.

ST. THOMAS' MOUNT, *December 18th*, 1861.

We regret to find that Mr. Ranking's article in our last Number should have been construed as reflecting upon the diagnostic skill or practice of the various medical officers who preceded him in medical charge of the 2nd European Regiment. Mr. Ranking's explanation on these points leaves nothing to be said, and we trust that the personal bearings of the topic under discussion will not require any further notice at our hands.

After due consideration of the points at issue between our correspondents, we incline to the opinion that they are differences more in words than in facts. Mr. Ranking is disposed to limit the term "Delirium Tremens" to the very gravest forms of that affection, whereas Mr. Ford, in common with, we think, the majority of those who have had large experience of the disease, includes under the same heading both the mild and the severe forms. It seems pretty clear that the cases analysed by Mr. Ranking, and which he would exclude, could not with propriety be included under the head "Ebrietas." They are all somethiug more than simple drunkenness, or the results of a common debauch.

If such cases are not recorded as "Delirium Tremens," a new definition must be introduced into our already elaborate nosology. We agree with Mr. Ford in thinking that insomnolency is the most characteristic symptom of the peculiar affection of the nervous system which the profession have agreed to recognise as Delirium Tremens. It is the symptom of all others which is the most persistent, and which, until relieved by appropriate treatment, causes the greatest anxiety to the physician.

The tables, now given by Messrs. Ranking and Ford, we regard as in the highest degree instructive. The great preponderance of cases in the 2nd E. L. I. both of Delirium Tremens and Ebrietas, requires further investigation as to the conditions necessary to the production of these diseases. We find for the first eight years of the existence of the 2nd E. L. I., a period when all the soldiers may be considered as young men, but few admissions under either head. A period from 1851 to 1855, during which the corps occupied the station of Secunderabad, is remarkable for the number of admissions resulting from intemperance. At this station country liquor is easily procurable, at prices within the reach of all who choose to gratify their appetites by indulgence in its use. In the two following years while the corps was stationed at Tonghoo, and liquor, beyond the canteen allowance, not so easily attainable, there was a remarkable diminution in the number of admissions.

This decrease might have resulted either from the difficulty of procuring liquor, from the invaliding of several old drunkards previous to embarkation on foreign service, or from some unascertained effect of climate in rendering drunkards less liable to these peculiar conditions of the nervous system. The records of the Regiment will doubtless permit Mr. Ranking to pursue the interesting inquiry he has so ably begun.

Mr. Ford's table appears to be valuable as showing the infrequency of Delirium Tremens in young soldiers; and the great preponderance of cases amongst those who are between 30 and 40 years of age. The average age at enlistment being under 20, it follows that all those men between the ages of 30 and 40 must be old soldiers. The frequent repetition of the same name in Mr. Ford's list, proves that a large number of the 74 cases depend upon the re-admissions of a few well seasoned drunkards.

For example, we observe that the individual rejoicing in the name of Henry Scroggs, figures no fewer than six times in the table, and all in the course of little more than two years.

The question as to the best mode of treating such cases must, we think, be still considered *sub-judice*. No class of medical practitioners have such opportunities for contributing to its satisfactory settlement as the edical officers in charge of European troops in India, and we venture to express a hope that as an interest in the subject has been awakened, Regimental officers may be induced to furnish us with the results of their practice, for publication.—ED. *M. Q. J.*

List of Cases of Delirium Tremens treated in 1858-59, *to August* 1860,—*in the Hospital of the 2nd Regt. E. L. I. at Trichinopoly.*

Names.	Ages.	Duration of disease.	Quantity of Liquor Opii. and Tinctura Opii. taken.	Page of Journal.	Volume.	Remarks.
Henry Scroggs	32	8 days.	Not known	0	0	These 15 cases occurred in the earlier months of the official year 1858-59, and prior to my assumption of medical charge of the 2nd E. L. I. (or H. M.'s 105th Regiment) on 27th July 1858.
Boyd McGarigle	30	13 do.	Do.	175	95	
John Manly	40	7 do.	Do.	190	95	
Charles Keane	30	6 do.	Do.	0	0	
William Phillips	42	4 do.	Tinct. Opii. ʒ iii., ℳ xx	0	0	
Henry Scroggs	32	4 do.	Do. ʒ v., ℳ l	0	0	
J. Hutchinson	32	5 do.	Do. ʒ v	16	91	
Henry Wright	37	14 do.	Not known	142	91	
Henry Wright	37	5 do.	Do.	164	91	
Charles Keane	30	5 do.	Do.	0	0	
William Harkin	33	14 do.	Do.	228	91	
Henry McBride	30	7 do.	Do.	214	91	
John Seers	40	17 do.	Do.	222	91	
John Noonan	34	12 do.	Tinct. Opii. ʒ i	51	94	
Maurice Bowen	28	18 do.	Do. ℳ xviii	41	93	
William Lennon	29	13 do.	Do. ʒ i., ʒ vi., ℳ xxxv	255	94	
Christopher Portley	28	8 do.	Do. ʒ ii., ʒ iii., ℳ xxv	133	95	
Charles Everett	30	13 do.	Do. ʒ ii., ʒ vi., ℳ xl	134	95	
Boyd McGarigle	30	8 do.	Do. ʒ vi., ℳ x., Liq. Opii. Sed. ʒ vii., ℳ xxv	327	96	
John Manly	43	6 do.	Do. ʒ i., ʒ i., ℳ xl., Liq. Opii. Sed. ʒ iii., ℳ l.	190	95	
John Burgess	38	4 do.	Do. ʒ iii., ℳ l., Liq. Opii. Sed. ʒ i., ℳ xxx	204	95	
Henry Wright	37	5 do.	Do. ʒ iv., ℳ xxv., Liq. Opii. Sed. ʒ ii	215	95	

Henry O'Brien	36	58	do.	Do.	℥ i., Liq. Opii. Sed. ℨ i., ℥ vi., and ♏ xxx	179	93
Henry McBride	29	15	do.	Do.	℥ v	209	95
John Fergusson	42	6	do.	Do.	℥ ii., ♏ xv	302	95
John Fitzgerald	35	15	do.	Do.	i., ℥ vi., and ♏ l., Liq.Opii.Sed. ℨ i., and ♏ xx	337	95
Robert Boyd	35	12	do.	Liqr. Opii.	i., ℥ iii., ♏ lv	231	93
Edward Lynch	35	12	do.	Do.	ii., and ♏ xxxiii	281	93
John Lee	31	44	do.	Do.	i., ℥ iii., and ♏ x., Tinct. Opii. ℥ i., ♏ xl.	90	96
James Karney	39	9	do.	Do.	i., ℥ v., Tinct. Opii. ♏ xx	307	93
Samuel Bradley	36	7	do.	Do.	℥ i., and ♏ 45 Tinct. Opii. ʒ ii	310	93
Henry Scroggs	32	7	do.	Do.	ʒ v., Tinct. Opii. ℥ iii	96	96
Abraham Wheilding	38	9	do.	Tinct. Opii.	ℨ i., ℥ iii	101	96
Patrick Donohoe	45	9	do.	Liqr. Opii.	℥ vi., ♏ xxv., Tinct. Opii. ♏ xxx	328	93
Thomas Gyte	30	10	do.	Do.	℥ vi	30	98
John Jackson	24	8	do.	Do.	℥ vii., ♏ x Tinct. Opii. ʒ iss	51	98
John Manly	39	10	do.	Tinct. Opii.	♏ xv., Liq. Opii. ℥ vii., ♏ xx	50	99
Richard Wilson	36	6	do.	Liqr. Opii.	ʒ vi., ♏ x	124	96
David Fitzgerald	40	22	do.	Do.	ʒ vii., ♏ 50	155	96
Charles Carr	30	6	do.	Do.	℥ v	143	96
Patrick Farrell	45	7	do.	Tinct. Opii.	℥ v., Liq. Opii. ℥ i	197	96
Henry Scroggs	32	8	do.	Do.	ℨ i., Liq. Opii. ℥ ii., ♏ xl	140	98
Duncan McAlpine	33	4	do.	Do.	ʒ iii., ♏ xxxv	196	96
David Fitzgerald	31	19	do.	Do.	℥ vi	262	96
David Kelly	22	6	do.	Liqr. Opii.	ℨ i., ℥ vi	172	98
Peter Belford	26	7	do.	Do.	℥ v	32	100
Henry Scroggs	32	5	do.	Tinct. Opii.	℥ v., ♏ xx	221	98
Martin Reardon	39	6	do.	Do.	i., ℥ ii	220	98
Owen Kelly	35	4	do.	Do.	i., ℥ ii	304	96
Boyd McGarigle	27	10	do.	Do.	i., ℥ i., ♏ l	327	96
Richard Delany	39	9	do.	Do.	i., ℥ iii	354	98
Patrick Penn	45	11	do.	Do.	℥ vi., ♏ l	352	96
John Manly	39	28	do.	Do.	℥ ii., Liq. Opii. ℨ i., ℥ iii	365	96

List of Cases of Delirium Tremens treated in 1858-59, *to August* 1860,—*in the Hospital of the 2nd Regt. E. L. I. at Trichinopoly.—(Continued.)*

NAMES.	Ages.	Duration of disease.	Quantity of Liquor Opii. and Tinctura Opii. taken.	Page of Journal.	Volume.	REMARKS.
John Manly	39	8 days.	Liqr. Opii. ʒ v., Tinct. Opii ʒ i., ♏ xx	25	101	
William Chapman	38	11 do.	Do. ʒ iii., Tinct. Opii. ʒ ii., ♏ xx	322	98	
Robert McCrary	39	5 do.	Tinct. Opii. ʒ iv., ♏ x	340	98	
John Manly	40	7 do.	Liqr. Opii. ʒ vi	336	98	
David Fitzgerald	35	6 do.	Tinct. Opii. ♏ l	353	98	
David Fitzgerald	35	14 do.	Do. ʒ v., ♏ l	356	98	
John Wynn	30	22 do.	Do. ʒ vii., Liq. Opii. ʒ ii., ♏ l	167	99	
George Mathews	38	8 do.	Do. ʒ i	95	101	
Patrick Farrell	44	5 do.	Do. ʒ iii., ♏ l	101	101	
Henry Scroggs	32	6 do.	Liqr. Opii. ℥ ss	115	101	
John Manly	39	12 do.	Do. ʒ vi., ♏ xxx	116	101	
Timothy McDermott	30	12 do.	Do. ℥ iss	134	101	
John Ramsey	25	10 do.	Do. ʒ i	153	101	
Hector McMullins	42	15 do.	Do. ℥ iss	149	101	
James Ryan	32	8 do.	Do. ʒ i., ♏ xxxvi	154	101	
Charles Keane	29	9 do.	Do. ʒ vi	175	101	
Frederick Morris	39	14 do.	Do. ʒ i., ♏ xxxvi	166	101	
Frederick Morris	39	8 do.	Do. ʒ vi	179	101	
Henry O'Brien	38	7 do.	Do. ℥ i	197	101	
William Carey	30	11 do.	Do. ʒ i., ʒ ii	255	101	
Charles Keane	29	24 do.	Do. ʒ i., ʒ iii	299	0	

PART II.

REVIEWS AND NOTICES OF BOOKS.

A Book about Doctors. By J. Cordy Jeafferson, Author of "Novels and Novelists," "Crewe Rise," &c., &c. Second Edition, Revised—London: Hurst and Blackett, Publishers, 13, Great Marlborough Street, 1861.

What can be said too much in praise of a really pleasant book? A Book of Ana, a pleasant, readable, chattable book, a book to lie on consulting tables, to be found alike on the student's shelf, or in the pleasant country library? Such a book is before us, and Mr. Jeafferson has rendered not only himself and his publishers a substantive benefit (if we may judge from the rapid appearance of a second edition), but the Medical profession a good service by publishing a work, which not only amuses, but offers a well deserved eulogium to many eccentric and bright characteristics of our glorious profession.

The first chapter is devoted to something about Sticks, and rather less about Wigs: for what in days gone past was a physician without either? And we are not quite sure that Medicos have done well to abandon them; a suit of black velvet, rich lawn cravat, a flowing wig, ruffles, and a gold headed cane would, we are confident, carry the day even now, if one had the courage to start such a costume against peg-tops, turn down collars, and a Magenta-colored tie.

Who that knows London at all has not heard of a certain Doctor of Manchester Square, who commenced his career with a large frill and a bright yellow Barouche! First laughed at, then talked of, he was ultimately sent for, and Frill P—e, as he is commonly called, was ere long in a good practice. We have had the good fortune to see P.'s frill, but would certainly have preferred to behold Colonel Dalmahoy's wig. This gentleman was an irregular practitioner, (though we fancy he is not the only Colonel of past days or "*present*,") who considered himself fit to dabble in medicine—and was famous for his wig, as we may judge from the following doggrels—

> "If you would see a noble wig,
> And in that wig a man look big,
> To Ludgate Hill repair my joy,
> And gaze on Colonel Dalmahoy."

He was an accomplished fellow, this Colonel, for—

"Dalmahoy sold infusions and lotions,
Decoction, and gargles and pills,
Electuaries, powders and potions,
Spermaceti, salts, scammony, squills.

Horse aloes, burnt alum, ageric,
Balm, benzoine, blood stone and dill,
Castor, camphor, and acid Tartaric,
With specifics for every ill.

But with all his specifics in store,
Death on Dalmahoy one day did pop,
And although he had doctors a score,
Made poor Dalmahoy shut up his shop."

Next to Dalmahoy for a wig stood Dr. Brocklesby, who was so proud of his magnificent collection of artificial locks, that he disdained to wear a hat. And he was equally noted as a politician, but whether "*Whig*" or Tory, the author sayeth not. It is related of him that having called to visit the Duchess of Richmond's maid, he entered into so fierce an argument with the valet, a clever and pampered servant, husband to the invalid, who was showing him the way to the sick chamber, that he continued the argument upstairs, into the sick room, down again and into his carriage, forgetting altogether to prescribe for the patient. Some such story, if we mistake not, is told of a Madras Surgeon (of course *many, many* years ago), who being called in to prescribe for a young civilian just arrived in the country, was so taken up conversing with the invalid's pretty wife, as to make his bow after half an hour's agreeable chat, and had just shut his carriage door, when he was re-called by the orders of the sick man, and amidst countless apologies, prescribed.

To the acquirements of the Elizabethan physicians in every department of learning, save the sciences immediately concerning their own profession, Lord Bacon bears emphatic testimony: "For you shall have them—antiquaries, poets, humourists, statesmen, merchants, divines." Indeed, amongst the most celebrated and learned English physicians was John Phreas who, for his translation of Diodorus Siculus, which he dedicated to Pope Paul II., was nominated to an English Bishopric. Fatal gift! for a disappointed candidate, had him poisoned before the day of consecration. If the poisoner were a clergyman, the deed has much to plead for in excuse; for who would not deem himself justified in poisoning, say an Assistant Chaplain made Director General?*

* We do not hold ourselves responsible for our Reviewer's sentiments, as here expressed!—Ed.

John Kaye or Key (or Caius, as it has long been pedantically spelt) was supposed to be the original of Shakespeare's Caius in the Merry Wives of Windsor, and we all remember his disgust with "Sir Hugh," the Padre, for presuming even to be in love with Mrs. Anne Page, and his words to Simple—

"You jack-a-nape give a dis letter to Sir Hugh; by gar it is a shallenge: I vill cut his troat in de park; and I vill teach a scurvy jack-a-nape priest to meddle or make;—you may be gone; it is not good you tarry here: by gar I vill cut all his two stones; by gar he shall not have a stone to trow at his dog."

Such were the fearful penalties poor Parson Hugh was to undergo for being simply in love.

Linacre was another whose memory was long "green amongst men." He it was who, in conjunction with John Chambre, Fernandus de Victoria, Nicholas Halswell, John Fraunus and Cardinal Wolsey, persuaded Henry VIII. to grant letters patent, establishing the College of Physicians. He, like some others, took holy orders, and being thus prompted for the first time in his life to look into the Holy Scriptures, was so struck with astonishment at finding the wide variance between its rules and the practice of professing Christians; that he threw the holy book from him in a passion, exclaiming "Either this is not the Gospel, or we are not Christians."

Succeeding Caius comes the immortal Harvey, whose memory is still our own and our country's glory, but it will scarcely be credited that cotemporary with him lived Theodore Turquet de Mayerue, Baron Aulbone of France, and Sir Theodore Mayerue in England, *a famous physician,* who was the Medical adviser of no fewer than five French and English monarchs—Henry IV. and Louis XIII. of France, and James I., Charles I., and Charles II., of England; he accumulated great wealth, and married his only daughter to the Marquis of Montpouvillon.

This noble physician's pet prescription was a Balsam of Bats (written we presume Balsamum Cheiropterum), strongly recommended for hypochondriasis—a pleasing mixture of adders, bats, sucking whelps, earth worms, hog's grease, the marrow of a stag, and the thigh bone of an ox. The balsam, whatever it may have done for others, filled his coffers and prolonged his life to eighty-two!

Caius was an eastern counties man, so was William Boleyn (of the same family as the unfortunate Anne Boleyn,) a shrewd sensible man, much given to botany. He too was,

as times went, a fair Surgeon, and his precept that a Surgeon should have a "gladsome countenance," because the patient should not be greatly troubled, is one as useful to-day as when he wrote it. For curiosities let any one turn to his prescriptions for an "Embrocation"—"a Good Emplaster," "and Electuarium de Gemmis," the latter especially we strongly recommend to the notice of any one holding a Durbar Surgeoncy. It is indeed a prescription fit for Princes.

Whether that extraordinary character, Sir Kenelm Digby, is to be ranked amongst physicians seems doubtful—a man who combined in one person the attributes of a Mæcenas, a Sir Philip Sydney, a Dr. Dee, a Beau Fielding, and a Dr. Kitchener, might well be claimed by other professions than ours: principally he seems to have been a warrior, and is famous for his victory over the Venetians and Algerines at Scanderoon.

> "Witness his action done at Scanderoon,
> Upon his birth-day, the eleventh of June."

Lines scarce worthy of Ben Jonson, to whom they are attributed. He seems to have been also a controversial divine, then the unfortunate husband of the beautous Venetia Stanley, the prettiest, best born, and most frail of her day. Then for the honour of his king and country he pinks, in a famous duel, a French Nobleman, Lord Mount de Ros, "who by base and slanderous words reviled our King."

"But of all Sir Kenelm's vagaries his Sympathetic powder was the drollest. The composition revealed after the Knight's death by his chemist and steward George Hartman, was effected in the following manner. English vitriol was dissolved in warm water; this solution was filtered and then evaporated, until a thin scum appeared upon the surface. It was then left undisturbed and closely covered in a cool place for two or three days, when fair, green and large crystals were evolved.

"Spread these, continues the chemist, abroad in a large flat earthen dish and expose them to the heat of the sun in the dog days, turning them often, and the sun will calcine them white; when you see them all white without, beat them grossly and expose them again to the sun, turning and stirring it often. Continue this until it be reduced to a white powder, which put in a glass and tie it up close, and keep in a dry place."

The virtues of this powder were unfolded by Sir Kenelm in a French oration delivered to "a solemn assembly of nobles and learned men at Montpellier, in France." It cured

wounds in the following manner; "if any piece of a wounded person's apparel, having on it the stain of blood that had proceeded from the wound, was dipped in water holding in solution some of this sympathetic powder, the wound of the injured person would forthwith commence a healing process. It mattered not how far distant the sufferer was from the scene of operation." Sir Kenelm gravely relates the case of his friend, Mr. James Howel, the author of the "Dendrologia," translated into French by Mons. Baudoin.

"Coming accidentally on two of his friends fighting a duel with swords, Howel endeavoured to separate them by grasping hold of their weapons. The result of his interference was to shew the perils that

"Environ,
The man who meddles with cold iron."

"His hands were severely cut, insomuch that four or five days afterwards when he called on Sir Kenelm with his wounds plastered, and bandaged up, he said his Surgeons feared the supervention of gangrene. At Sir Kenelm's request he gave the Knight a garter which was stained with his blood. Sir Kenelm took it and without saying what he was going to do, dipped it in a solution of his powder of vitriol. Instantly the sufferer started.

"'What ails you?' cried Sir Kenelm.

"'I know not what ails me,' was the answer; but I find that I feel no more pain. Methinks that a pleasing kind of freshness, as it were a cold napkin, did spread over my hand, which hath taken away the inflammation which tormented me before.'

"'Since that you feel,' rejoined Sir Kenelm, 'already so good an effect of my medicament, I advice you to cast away all your plasters. Only keep the wound clean and in moderate temper, 'twixt heat and cold.'"

(Sensible Sir Kenelm.)

"Mr. Howel went away, sounding the praises of his physician; and the Duke of Buckingham hearing what had taken place, hastened to Sir Kenelm's house to talk about it. The Duke and Knight dined together; when after dinner, the latter, to show his guest the wondrous power of his powder, took the garter out of the solution and dried it before the fire. Scarcely was it dry when Mr. Howel's servant ran in to say that his master's hand was worse than ever, burning hot as if 'it were betwixt coals of fire.' The messenger was dismissed with the assurance that ere he reached home his master would be comfortable again. On the man retiring Sir Kenelm put the garter back into the solution, the result of which was instant relief to Mr. Howel. In six days the wounds were entirely healed. This remarkable case occurred in London, during the reign of James

First, to whom Sir Kenelm was induced ultimately to confide the secret."

We leave this wonderful case as it stands, and decline comment upon it, for did not a Duke witness it, and divers other persons of great credit?

Sir Kenelm ultimately died, not before, however, he had reached great honours, amongst them the coveted F. R. S., and the following is his Epitaph by Ferrar.—

> "Under this tomb the matchless Digby lies,
> Digby the great, the valiant and the wise;
> This age's wonder for his noble parts,
> Skilled in six tongues and learned in all the arts.
>
> Born on the day he died, the eleventh of June,
> And that day bravely fought at Scanderoon;
> It's rare that one and the same day should be,
> His day of birth, and death, and victory."

Poor Digby and his Scanderoon, even his powder and all his tongues, succumb at last to the pale horse.

Pass we on to times more modern, and to names more known.

Sir Hans Sloane, Sydenham and Heberden, come forth to meet us. Sloane was an Irishman, but claimed of course by the Scotch, with that amusing contention we have in our own days seen about Garibaldi, Pellisier, McMahon and others. By the bye the coolest assertion of that sort we remember was by a Caledonian fellow student of our own, who claimed the Trojans as fellow countrymen on the strength of Andrew Mackie (Andrŏmăche), sex and quantities in this case counting for nothing.

Sloane was a lucky fellow; at the age of 25 he was a Fellow of the Royal Society; at 27 a Fellow of the College, and sailed with the Duke of Albemarle as his private Physician to Jamaica: he returned on the death of his Grace with the Duchess, and remained in London, where his professional career, social position and scientific reputation became alike brilliant. He succeeded Sir Isaac Newton as President of the Royal Society, and was appointed Physician to George II. He was likewise the first doctor who received a Baronetcy.

His collection of books, writings, &c., became after his death the property of the nation, having been purchased for a small sum, and laid the foundation of the British Museum. This and the Museum of the Royal College of Surgeons are

perhaps the finest collections of their sorts in the world, the one founded by a Physician, the other by a Surgeon.

"'Tis strange the miser should his cares employ,
To gain those riches he can ne'er enjoy;
Is it less strange the prodigal should waste
His wealth to purchase what he ne'er can taste?

Not for himself he sees, or hears, or eats,
Artists must choose his pictures, music, meats;
He buys for Topham drawings and designs,
For Pembroke statues, dirty gods, and coins,

Rare monkish manuscripts for Heare alone,
And books for Mead, and *butterflies for Sloane.*"

Sloane became a dreadful miser, "that last sad passion of a gentleman" as Byron calls it, and died very rich.

In Pope our profession had a great friend, and one of whom we may well feel proud; in the celebrated fight of the Apothecaries and Physicians, Pope warmly espoused the side of the latter.

"So modern 'Pothecaries taught the art,
By Doctor's bills to play the Doctor's part:
Bold in the practice of mistaken rules,
Prescribe, apply, and call their masters fools."

To Dr. Arbuthnot he wrote—

"Friend to my life, which, did not you prolong,
The world had wanted many an idle song."

Again—

"Weak though I am of limb, and short of sight,
Far from a lynx, and not a giant quite;
I'll do what Mead and Cheselden advise,
To keep these limbs, and to preserve these eyes."

And we may be pardoned the conceit of quoting his opinion of the faculty which occurs in a confidential letter to a friend. "They are in general the most amiable companions, and the best friends, as well as the most learned men I know."

Garth is perhaps the most cherished of all the Physicians of Pope's time. He was a Whig without rancour, and a bon vivant without selfishness.

"Full of jest and amiability he did more to create merriment at the Kit-Kat Club than either Swift or Arbuthnot, he loved wine to excess, but then wine loved him too, ripening and warming his wit, and leaving no sluggish humour behind. His practice was a good one, but his numerous patients prized his bonmots more than his prescriptions."

Pope honoured him when alive by dedicating his second pastoral to him.

> "Accept O Garth, the Muses early lays,
> That adds this wreath of ivy to thy Bays;
> Hear what from love, unpractised heart endure,
> From love, the sole disease, thou canst not cure."

Garth's death was characteristic. "Gentlemen," said Charles II. to his courtiers, "I beg your pardons, but I am an unconscionably long time dying." "Gentlemen," said Garth, "I wish the ceremony of death was over," and so sinking lower in the bed, he died without a struggle. Said Rabelais when he saw his doctors consulting together, "Dear Gentlemen, pray let me die a natural death." And having received extreme unction, and being asked how he felt, "I am going on my journey," was the answer. "They have greased my boots already."

The story of the Irishman looking over Garth's shoulder, whilst he was writing a letter, and Garth's humourous postscript, we all remember, the following is new to us.

"Stumbling into a Presbyterian Church one Sunday for pastime, he found a pathetic preacher shedding tears over the iniquity of the earth.

"'What makes the man cry?' asked Garth of a bystander.

"'By my faith,' was the answer, 'and you too would cry, if you were in his place, and had as little to say.'

"'Come along, my dear fellow,' said Garth to his new acquaintance, 'and dine with me. You are too good a fellow to be here.'"

Sir Samuel Garth, knighted by the sword of Marlborough, died January 18th, 1718, and was buried at Harrow on the Hill.

Has it never occurred to any of our readers toiling slowly along the weary road of professional life, to feel jealous of the impertinent quack dashing past in his chariot, and to half register a vow to quit the beaten and honest foot-path of science, and by gulling the public to have a chariot too?

The sneaking coward of the present day, trading on the fears and shame of silly youths, we confess an abhorrence of; but the jaunty paunchy well-to-do freebooter of olden fairs and gatherings, he, for instance, in the Barbiere de Seviglia, we admit we secretly admire.

The following description of such an one is admirable—

"His plan of making acquaintance with a new place was to ride boldly into the thickest crowd of a fair or market, with as much

speed as he could make, without imperilling the lives of the bystanders; and then, when he had checked his steed, inform all who listened that he had come straight from the Duke of Bohemia, or the most serene Emperor of Wallachia, out of a desire to do good to his fellow creatures. He was born in that very town—yes, that very town in which he was speaking, and had left it an orphan child of eight years of age, to seek his fortune in the world. He had found his way to London and been crimped on board a vessel bound for Morocco, and so had been carried off to foreign parts. His adventures had been wonderful, he had visited the Sultan and the Great Mogul. There was not a part of the Indies with which he was not familiar. If any one doubted him let his face be regarded, and his bronze complexion bear witness of the scorching suns he had endured. He had cured hundreds, aye, thousands, of emperors, kings, queens, princes, margravines, grand duchesses, and generalissimos of their diseases. He had a powder which would stay the palsy, jaundice, hot fever and cramps. It was expensive; but that he could not help, for it was made of pearls and dried leaves of violets brought from the very middle of Tartary, still he could sell a packet of the medicine for a crown—a sum which would just pay him back his outlaid money and leave him no profit. But he did not want to make money of them. He was their fellow-townsmen, and in order to find them out and cure them he had refused offers of wealth from the King of Mesopotamia, who wanted him to accept a fortune of a thousand pieces a month, tarry with the Mesopotamians, and keep them out of death's clutches.

"He sold all kinds of medicaments, dyes for the hair, washes for the complexion, lotions to keep young men youthful, rings which, when worn on the fore-finger of the right hand, should make a chosen favourite desperately in love with the wearer, and when worn on the same finger of the left hand, should drive the said favourite to commit suicide.

"Nothing could surpass the impudence of the fellow's lies, save the admiration with which his credulous auditors swallowed his assertions. There they stood—stout yeoman, drunken squires, merry peasant girls, gawky hinds, gabbling dames, deeming themselves in luck's way to have lived to see such a miracle of learning. Possibly a young student home from Oxford with the rashness of inexperience, would smile scornfully, and in a loud voice designate the pretender a quack.

"But such an interruption in ninety and nine cases out of every hundred, was condemned by the orthodox friends of the young student, and he was warned he would come to no good if he went on as he had begun, a contemptuous unbeliever and a mocker of wise men."

Medical quacks have sprung from every class. The clergy have produced not a few, but the quack, par excellence of our

times, was St. John Long, a man still well remembered by many in London.

St. John was no ordinary man, for though sprung from a low origin, he was handsome, had a good address, and a considerable amount of intellect.

The son of an Irish basket maker, he was born near Donneraile. He was at first an artist, and it was from studying anatomy to improve himself in his vocation that he became fired with the idea of becoming a follower of Æsculapius.

"He invented a Lotion or Liniment endowed with the remarkable faculty of distinguishing between sound or unsound tissues. To a healthy part it was as inocuous as water; but when applied to a surface under which any seeds of disease were lurking it became a violent irritant, creating a sore over the seat of mischief and stimulating nature to throw off the morbid virus. He also instructed his patients to inhale the vapour which rose from a certain mixture compounded by him in large quantities, and placed in the interior of a large mahogany case, which very much resembled an upright piano. In the sides of this piece of furniture were apertures, into which pipe stalks were screwed for the benefit of afflicted mortals, who, sitting on easy lounges, smoked away like a party of Turkish elders."

With these two agents St. John Long engaged to combat every form of disease—gout, palsy, obstruction of the liver, cutaneous affections; but the malady which he professed to have the most complete command over, was consumption.

His success for a short time was enormous.

"Unparalleled were the scenes which the reception rooms of that notorious house in Harley-street witnessed. In one room were two enormous inhalers, with flexible tubes running outwards in all direction, and surrounded by dozens of excited women, ladies of advanced years, and young girls giddy with the excitement of their first London season—puffing from their lips the medicated vapour, or waiting till a mouth-piece should be at liberty for their pink lips. In another room the magician received his patients. Some he ordered to persevere in inhalation, others he divested of their raiment, and rubbed his miraculous liniment into their backs between their shoulders and over their bosoms. Strange to say these lavations and frictions, which invariably took place in the presence of third persons, nurses or invalids, had very different results. The fluid which, as far as the eye could discern, was taken out of the same vessel, and was the same for all, would instantaneously produce on one lady a burning excoriation, which had in due course to be dressed with cabbage leaves; but on another would be so powerless that she could wash in it, drink it copiously like ordinary pump water, with impunity.

'Yes,' said the Wizard, 'that was his system, and such were its effects. If a girl had tubercles in her lungs, the lotion applied to the outward surface of her chest would produce a sore and extract the virus from the organs of respiration. If a gentleman had a gouty foot and washed in this new water of Jordan, at the cost of a little temporary irritation, the vicious particles would leave the affected part. But on any sound person who bathed in it, the fluid would have no power whatever."

There must of course have been some sleight of hand in this affair of the liniment, but it was well managed, and took immensely—people flocked from all quarters to consult this wonderful man, and he consequently, with considerable tact, chose to attend only on such as promised a successful result, and whose position would give his cure eclat, for he had more applicants than he could possibly attend to.

Ladies were his chief patients, and no wonder

"He was tall and slight, strongly built; and his countenance, thin and firmly set, although frank in expression, caused beholders to think highly of his intellectual refinement, as well as of his decision and energy. Possibly his personal advantages had no slight influence with his feminine applauders. But he possessed other qualities yet more fitted to secure esteem—an Irish impetuosity of temperament, and a sincere sympathy with the unfortunate. He was an excellent horseman, hunting regularly and riding superb horses. On one occasion as he was cantering round the Park, he saw a man strike a woman, and without an instant's consideration, he pulled up, leaped to the ground, seized the fellow bodily, and with an enormous effort flung him slap over the Park rails."

Bravo, St. John Long.

"He was very temperate in his habits, and although *Irish* gentlemen *used** to get tipsy, he never did. Painting, music, and the society of a few really superior women, were the principal sources of enjoyment, to which this brilliant charlatan had recourse in his leisure hours. Many were the ladies of rank, and girls of gentle blood who would have gladly linked their fortunes to him and his thousands a year. But though numerous matrimonial overtures were made to him, he persevered in his bachelor style of life; and although he was received with peculiar intimacy into the privacy of female society, scandal never even charged him with a want of honor or delicacy towards women, apart from his quackery. Indeed, he broke off his professional connection with one notorious lady of rank, rather than gratify her eccentric wish to have her likeness taken by him in that remarkable costume, or no costume at all, in which she was wont to receive her visitors."

* This is a grievous mistake of the Author's.—Reviewer.

His receipts were enormous: some ten to fifteen thousand pounds a year.

But brilliant as was his success and the support afforded him, it might have been thought that two trials for manslaughter, in one of which he was found guilty and fined £200, would have burst the bubble—not at all!! It was only when he himself, at the age of thirty-seven, with almost bitter satire, died of the very complaint "consumption," over which he professed absolute power, that the star of the brilliant St. John Long set.

He was buried in Kensal Green Cemetery, and over his remains his numerous admirers erected a handsome and costly monument. It was found after his death that he was married to a woman of obscure origin and vulgar appearance, who had agreed to an amicable separation, hence the secret of his apparent indifference to the advances of his noble and fair supporters.

But a truce to quacks.

Abernethy is the man, perhaps of all others of our profession, upon whom has been fathered the greatest number of medical facetiæ. Why has an Abernethiana never been published? A tithe perhaps of the stories told of him are true, the rest are either manufactured or occurred to other medical men, and have had Abernethy's name tacked on to give them additional currency. That he was sometimes petulant, and even gruff, when unnecessarily bothered, there can be little doubt; but that to the really sick he was most kind is equally certain.

A lady of our acquaintance (now a widow), the wife of a distinguished General, was once induced, greatly against her inclination, to call in Abernethy to see her husband. The great surgeon called, stayed nearly half an hour with his patient, himself applied some small dressings which were necessary, but are usually left to menials, and then descending to the drawing room in the kindest manner possible, commenced consoling her ladyship, and comforting her with an assurance of the speedy recovery of her husband. To his astonishment the lady burst into tears.

"But my dear Lady C. what is the matter? Do not cry, I assure you Sir William will soon be better."

"Oh! oh! Mr. Abernethy (sob, sob,) I shall never forgive myself" (sob, sob.)

"How never forgive yourself, it's not your fault Sir William is sick."

"No! but (sob, sob,) I have been very wicked—you are a dear good man. I shall never forgive myself" (sobs to an alarming extent behind a cambric pocket handkerchief.)

"But my dear lady explain yourself," said Abernethy, getting somewhat impatient and looking at his watch.

"Well—I am sure you will never forgive me—but (sob) I heard you were such a— a— brute (fearful sob) that I had two footmen in the next room ready to kick you downstairs if you had been rude to my husband."

"Thank you," said Abernethy, "I am, I assure you, delighted to find you did not require their services. Good morning to you Ladyship," and exit the great surgeon.

Not only can we vouch for the truth of the above story, but that after a tolerably long attendance, on the recovery of his patient, not only would Abernethy take no fee, but politely declared he had received such pleasure from the conversation of his distinguished patient, that it more than repaid him for his trouble.

Mr. Jeafferson has not, we think, succeeded in fixing on some of the best stories told of Abernethy: the following is about the best he has.

"'I have heard of your rudeness before I came in,' one lady said taking his prescription, 'but I was not prepared for such treatment. What am I to do with this?'

"'Any thing you like,' the surgeon roughly answered. 'Put it on the fire if you please.'"

Taking him at his word, the lady put her fee on the table, and the prescription on the fire; and making a bow left the room. Abernethy followed her into the hall, apologizing and begging her to take back the fee, or let him write another prescription; but the lady would not yield her vantage ground.

It was the boast of a celebrated Surgeon, not long passed away, that he had waded his way through blood to the head of his profession; but Abernethy, like Cheselden, Hunter, Cooper, and other great men, had a horror of operations, regarding them as the reproach of the profession.

We cannot quite subscribe to that sentiment—if an operation is necessary, it is well that it should be got over as quickly as possible;

> "When 'tis done then't were well
> It were done quickly"

should be the Surgeon's motto, but that no operation should be undertaken if it can possibly be avoided, is, we believe, pretty generally the rule now-a-days.

Mr. Skey used to tell a story of a French danseuse coming to Abernethy and requesting him to take off her great toe, which had grown inwards, and was not quite consonant with Mademoiselle's ideas of beauty.

"But why? the toe does not hurt you."

"No ma foi, but it is vary oogly."

"I wont," said Abernethy.

Mademoiselle muttering something about "brutale" disappeared, and consulting some one else more polite had the toe taken off, took lock-jaw and died!!

One of the best stories told of Abernethy, and not to be found in the book before us, is, we think, the one of a Barrister, who, calling after the hour of his seeing patients at home, pushed past the servant and found his way into the consulting room.

The Surgeon was writing and continued so doing, scarcely looking at the intruder, who busied himself unwrapping the bandages from his leg, about which he had come to consult him.

Having finished, Abernethy gave one contemptuous glance at the limb, calling out,

"Wrap it up, my good man, wrap it up, I know all about it."

The enraged Barrister did wrap it up, and taking Abernethy's prescription, put a shilling, folded in paper, on the table.

"Eh! what's this," said the Doctor, uncovering the modest coin. "Eh! I say you Sir, what's this, my fee is a guinea not a shilling."

"Wrap it up, my good man, wrap it up," said he of the law, "wrap it up, I know all about it."

But we could almost fill a volume with the anecdotes told of him. Abernethy was an Irishman, having been born in Belfast, "but so strong was the prejudice against the Irish when he settled in London at the close of the last century, that he called himself a Scotchman."* Had he come to India a few years ago, he would most probably have been 'canny' enough to do the same thing.

The "Quarrels" and "Loves" of Physicians are not the least amusing brace of chapters in this book. We have the reputation of being a quarrelsome body, but we question if the reputation be well earned. Our ancestors when they quarrelled had, however, a gentlemanly way of drawing their swords and settling the affair at once. A better plan, we think, than abuse on paper; a sword wound especially in these advanced days of surgery, being much more readily healed, than a mortal calumny on paper.

* Social and Political life five and thirty years ago. Fraser's Magazine, July 1860.

Mead, the most celebrated as well as successful physician of the last century, having been insulted by Woodward, a brother physician, was so infuriated that he drew and ordered his adversary to defend himself.

"The duel terminated in Mead's favour, as far as martial prowess was concerned, for he disarmed Woodward and ordered him to beg for his life.

"Never till I am your patient," answered Woodward.

What would not Samuel Garth have given to hear that!

"Cheyne was a Bath physician of great practice, and yet greater popularity, dying in 1743, at the age of 72. At one time of his life he was so prodigiously fat that he weighed 32 stone, he and a gentleman named Tantley being the two stoutest men in Somersetshire. One day after dinner the former asked the latter what he was thinking about.

"I was thinking," answered Tantley, "how it will be possible to get either you or me into the grave after we die."

"Cheyne was nettled, and retorted, six or eight stout fellows will do the business for me, but you must be taken at twice."

"Cheyne became ashamed of his obesity, and earnestly set about overcoming it. He brought himself down by degrees to a moderate diet, and took daily a large amount of exercise. The result was he reduced himself to under eleven stone, and instead of injuring his constitution, found himself in the enjoyment of better health. Impressed with the value of the discovery he had made, he wrote a book, urging all people afflicted with chronic maladies to imitate him and try the effects of temperance. Doctors, notwithstanding their precepts in favour of moderation, neither are, or ever have been, averse to the pleasures of the table. Many of them warmly resented Cheyne's endeavours to bring good living into disrepute, possibly deeming their interests were attacked, not less than their habits.

"Dr. Wynter arose to dispose of Cheyne in a summary fashion. Wynter had two good reasons for hating Cheyne. Wynter was an Englishman and loved wine, Cheyne was a Scotchman and loved milk."

DR. WYNTER TO DR. CHEYNE.

"Tell me from whom fat headed Scot,
Thou didst this system learn;
From Hippocrate thou hadst it not,
Nor Celsus nor Pitcairn.

"Suppose we own that milk is good,
And say the same of grass;
The one for babes is only food,
The other for an ass.

"Doctor, one new prescription try,
(A friend's advice forgive)
Eat grass, reduce thyself, and die,
Thy patients then may live."

Cheyne responded with more wit and better manners in the following fashion—

DR. CHEYNE TO DR. WYNTER.

"My system, Doctor, is my own,
No tutor I pretend;
My blunders hurt myself alone,
But yours, your dearest friend.

Were you to milk and straw confined
Thrice happy might you be;
Perhaps you might regain your mind
And from your wit be free.

I can't your kind prescription try,
But heartily forgive;
'Tis natural you should wish me die,
That *you yourself* may live."

The two concluding lines are severe.

We pass over the bloody duels of Dr. Williams and Dr. Bennett, or of Drs. Smith and Jefferies in America, or the still more bloody "difficulty" which came to a tragic end within the memory of the youngest amongst us, to recall the wit of a Doctor, whose name unhappily escapes us.

The Doctor having been challenged, came on the ground apparently unarmed—his opponent, on the contrary, not knowing exactly what arms Medicus might choose, had brought a goodly array of pistols, swords, daggers, &c.; his astonishment at seeing his adversary unprepared, was only exceeded by his anger.

"What Sir," cried he, bursting with rage, "you dare to make a fool of me, by Jove you shall repent it, where are you arms?"

"Here Sir," quoth the physician, cooly taking from his pocket a box from which he emptied two small pills into the palm of his hand, "here Sir, are my weapons; one of these pills is deadly poison, the other is harmless, do you swallow one and I will swallow the other; chose Sir."

The man of pistols declined, and as the physician would fight in no other way, professing himself unused to weapons, he was obliged to pocket his rage, and declare himself satisfied.

"Well," said the Doctor deliberately swallowing *both* pills, "my friend your courage is not great!" and then walked off the field. The pills were made of bread.

As to their "Loves," Jeafferson justly remarks—

"Considering the opportunities that medical men have for pressing a suit in love, and the many temptations to gentle emotion that they

experience in the aspect of feminine suffering, and the confiding gratitude of their fair patients, it is perhaps to be wondered at that only one medical Duke is to be found in the Annals of the Peerage."

This was Hugh Smithson, who won the hand of Percy's proud heiress, and was created Duke of Northumberland. The story is, that hearing of Smithson's rejection by a famous belle of private rank and modest wealth, she observed publicly "that the disdainful beauty was a fool, and that no other woman in England would be guilty of like folly."

On hearing this the Doctor, a singularly handsome man, took courage to sue for that to which men of far higher rank would not have presumed to aspire.

The following speaks volumes for the singular probity of the hero :—

"The writer of these pages," it is Mr. Jeafferson who speaks, "could point to a fair dame, who enjoys rank amongst the highest, and wealth equal to the station assigned her by the Heralds, who not only aimed tender glances and sighed amorously to a young waxen-faced blue-eyed Apothecary, but even went so far as to write him a letter proposing an elopement, and other merry arrangements, in which a carriage everlastingly careering over the country at the heels of four horses bore a conspicuous part. The lily maiden had, like Dinah, a fortune 'in silvyer and gold,' amounting to £50,000, and her blue-eyed Adonis was twice her age ; but fortunately he was a man of honor, and, without divulging the mad proposition of the young lady, he induced her father to take her away for twelve months' change of air and scene. Many years since the heroine of this little episode, after she had become the wife of a very great man, and the mother of children who bid fair to become ornaments to their illustrious race, expressed her gratitude cordially to this Joseph of the doctors for his magnanimity in not profiting by the absurd fancies of a child, and the delicacy with which he had taken prompt measures for her happiness ; and more recently she manifested her good-will to the man who had offered her what is generally regarded as the greatest insult a woman can experience, by procuring a commission in the army for his eldest son."

Sir John Elliot was another great favorite with the ladies, and suffered much from the emotional overtures of his fair patients.

"The King had a strong personal dislike to Sir John—a dislike possibly heightened by a feeling it was sheer impudence in a Doctor to capture without an effort the hearts of half the prettiest women amongst his subjects—and then shrug his shoulders with chagrin at his success. Lord George Germain had hard work to wring a baronetcy out of his Majesty for this victim of misplaced affection.

"Well," said the King, at last grudgingly, "My Lord, since you desire it let it be, but remember he shall not be *my* physician."

"No, Sir," answered Lord George, "he shall be your Majesty's Baronet, and my Physician."

"One lady, the daughter of a noble member of a Cabinet, ignorant he was otherwise occupied, made him an offer, and on learning to her astonishment that he was a married man, vowed that she would not rest till she had assassinated his wife!"

Dr. Cadogan of Charles the Second's time, was, like Sir John Elliot, a favorite with the ladies. His wont was to spend his days in shooting, and his evenings in flirtation. To the former of these tastes the following lines refer.

> "Doctor, all game you either ought to shun
> Or sport no longer, with the unsteady gun;
> But like Physicians of undoubted skill,
> Gladly attempt what never fails to kill.
> Not *lead's* uncertain dross, but physic's deadly *pill*."

Whether he was a good shot we cannot say; but he was sufficiently adroit as a squire of dames, for he secured as his wife a wealthy lady, over whose property he had unfettered control. Against the money, however, there were two important points, figuring under the head of "set-off"—the bride was old, and querulous. Of course such a woman was unfitted to live happily with an eminent physician, on whom bevies of Court ladies smiled, whenever he went West of Charing Cross.

"After spending a few months in alternate fits of jealous hate and jealous fondness, the poor creature conceived the terrible fancy that her husband was bent on destroying her with poison, and so ridding his life of her execrable temper. One day when surrounded by her friends, and in the presence of her Lord and Master, she fell on her back in a state of hysterical spasms, exclaiming—

"'Ah! he has killed me at last. I am poisoned.'

"'Poisoned!' cried her lady friends turning up the whites of their eyes. 'Oh! 'gracious goodness,' you have done it doctor!'

"'What do you accuse me of?' asked the doctor with surprise.

"'I accuse you of—kil—killing—me—ee—' responded the wife, doing her best to imitate a death struggle.

"'Ladies', answered the doctor, with admirable nonchalance, bowing to Mrs. Cadogan's bosom associates, 'it is perfectly false. You are quite welcome to open her at once, and then you'll discover the calumny.'"

The best love story is unquestionably that told of Dr. Kemp, the grave and reverend Æsculapius, but for this some-

what lengthy, although very amusing, story, we must refer our readers to the book itself.

One glance at the "*pleasant*" subject of fees, and we must conclude. At the present day, at least in our Eastern empire, "fees" are not of much interest; people amongst *us* are much too well bred to trouble their Medical attendants with anything so common.

"Times were, however, when gratitude to Medical men took a substantial means of expression. Seleucus for having his son Antiochus restored to health, gave Erasistratus sixty-thousand crowns, and for their attendance on the Emperor Augustus and his two next successors, no less than four physicians received annual pensions of two hundred and fifty-thousand sesterces apiece.

"The largest fee Sir Astley Cooper ever received was paid him by a West Indian Millionaire named Hyatt. This gentleman having occasion to undergo a painful and perilous operation, was attended by Drs. Lettsom and Nelson as Physicians, and Sir Astley as Chirurgeon. The wealthy patient, his treatment having resulted most successfully, was so delighted that he fee'd his physicians with 300 guineas each. 'But you, Sir,' cried the grateful old man, sitting up in his bed and speaking to his surgeon, 'shall have something better, there Sir, take *that*.' The *that* was the convalescent's night cap which he flung at the dexterous operator. 'Sir,' replied Sir Astley picking up the cap, 'I will pocket the affront.'

"It was well he did so, for reaching home, he found in the cap a cheque for 1,000 guineas.

"Catherine, the Empress of Russia, was even more munificent than the West Indian planter. When Dr. Dimsdale, for many years a Hertford physician, and subsequently M. P. for that county, went over to Russia and inoculated the Empress and her son in the year 1768, he was rewarded with a fee of £12,000, a pension for life of £500 per annum, and the rank of Baron of the Empire. But if Catherine paid thus handsomely for increased security of life, a modern Emperor of Austria put down a yet more royal fee for his death warrant. When on his death bed the Emperor Joseph asked Quarin his opinion of his case, the physician told the monarch that he could not possibly live forty-eight hours. In acknowledgment of this frank declaration of the truth, the Emperor created Quarin a Baron, and gave him a pension of more than £2,000 per annum to support the rank with."

One quack, as fee, asked and obtained from the King the privilege of driving his carriage through St. James' Park—a privilege reserved for Royalty, and, if we mistake not, Cabinet Ministers.

But in contrast to this, our profession, we are afraid, too

often finds promises and fair appearances of remuneration held out during sickness, woefully ignored when the patient recovers. When the devil is sick he is a very different character from what he is when getting well.

"'Tis so with ordinary patients no less than with Satanic ones. The man who, when he is in his agonies, gives his medical attendant double fees three times a day (and vows, please God, he recover to make his fortune by trumpeting his praises to the world) on becoming convalescent grows irritable, suspicious and distant; and by the time he can resume his customary occupations looks on his dear benefactor and saviour as a *designing rascal* bent on plundering him of his wordly possessions."

> "Three faces wears the Doctor, when first sought,
> An angel's—and a God's, the cure half wrought;
> But when the cure complete he seeks his fee,
> The Devil looks then less terrible than he."

The barristers and attornies are much better off in this respect than we are. The one refuses to look at his "brief" without its accompanying honorarium; the latter has his remedy at law, as the *Madras Times* lately so humorously proved to us; but we can scarcely refuse to look at, or attend a sick man without our fee, and to argue or treat about money with a family in affliction, would require an amount of cold-bloodedness, from which happily our profession is free; but it deserves a better treatment, all the more perhaps for that reason, from the enlightened public.

We can cordially recommend Mr. Jeafferson's book, it is agreeably, amusingly, and sensibly written, and should find a place in all libraries.

The Hyderabad Medical School, its Past History and Present Condition. By GEORGE SMITH, M.D., Residency Surgeon and Superintendent.

IT is about two years since the former Report of the Hyderabad Medical School appeared, and in this interval its Superintendent has prepared seven more students for a searching and successful examination of their qualifications for the practice of medicine and surgery. With the exception of one East Indian, who is now an Assistant in the school, all the pupils just passed are Mahommedans, and we have thus six practitioners added to the small band of well-educat-

ed and thoroughly well qualified medical men, whom Dr. Maclean and Dr. Smith had previously sent forth into the city of Hyderabad and the several towns of the Deccan. It is to be hoped that these men will succeed in supplanting the ignorant hukeems, who have hitherto pretended to treat disease in its manifold and fatal forms in these localities, and, by the substitution of a rational treatment for the rank empiricism of their predecessors, prove themselves true blessings to the communities among whom they will practise.

Reviewing in our third number Dr. Smith's first report, we adverted to the circumstances which rendered the establishment of the Hyderabad Medical School a measure of equal humanity and expediency, and referred to the difficulties which attended its institution and opposed its success. The general system and mode of instruction pursued in the school, were also considered, and, as these have not undergone any alteration, they do not call for any further remark. We would observe, however, that the test of qualification for the diploma of the school is as severe as ever. It is as high as that of the Royal Colleges at home, and the fact of these young men having passed through the ordeal so creditably must, to use the words of Dr. Forsyth, "under all the difficult and discouraging circumstances, be accepted as a great success, and as strongly attesting the energy and persevering industry of the Superintendent, as well as the soundness of the system pursued."

It is noteworthy that the senior student of the batch was upwards of seven years under instruction, and the junior was as many as five years and four months. We are far from regretting this long term of pupilage. It is our conviction that hitherto our schools, colleges, and universities have erred in the opposite direction, and it is a hopeful sign that they have both seen, and seem disposed to rectify, their error. Besides, now-a-days, when the boundaries of Physiology and Pathology, as well as those of the collateral sciences of Chemistry and Botany, have expanded so widely, the period of study requires a proportionate extension. To expect a young man in four years to master thoroughly all the branches of study included in the curriculum of a full Medical and Surgical education, is simply absurd. A cup will not hold more than its containing capacity admits, and unless the brains of our students are better than those of their fathers, it is unreasonable to expect them to do double what their fathers did in the same time. And it augurs well

for the elevation of the medical profession in social status, that its members must hereafter as a class be men of higher attainments in general education than they have hitherto been. Nothing could be devised better suited to effect this end than a high preliminary education, a longer period of general as well as professional study, and consequent postponement to a more advanced age of the acquisition of the higher degrees in medicine. But, however desirable and even necessary this protraction of the term of pupilage may be at home, it has been, and is, still more so in such an institution as the Hyderabad Medical School. There the pursuit of knowledge has always been prosecuted under great difficulties, and not the least of these has been the lack of text books. This want has necessarily entailed great labour on the pupils, who consequently had to prepare, with much care as well as toil, full notes of the lectures, and make these serve as text-books. "Each student," says Dr. Smith, "possesses complete, or nearly complete, sets of the courses of lectures in manuscript, with copies of many of the diagrams used in illustration, more or less correctly drawn, as he happens to possess a more or less correct eye for form. These manuscript and illustrated volumes constitute valuable proofs of the untiring industry and zeal of the lads."

Taking a retrospect of the school's progress during the incumbency as its Superintendent, Dr. Smith writes :—"The Medical School may now be said to have completed the second stage of its development. The ground it has gained during my tenure of office may be succintly stated as consisting. 1stly. In the instruction of the pupils being now carried on without the assistance of an interpreter. 2ndly. In the plan of instruction initiated by my able predecessor having been finally reduced to system. 3rdly. In the commencement of a museum and library, and in the collection of a fair and useful set of demonstrative apparatus. 4thly. In the issue, under the authority of the Minister, of rules for the division of the Governmet Hukeems into classes, with a fixed scale of pay and allowances, and in the arrangements of the talook dispensaries having been reduced to method. 5thly. In the establishment of a Medical Journal begun in 1855, which journal has been carried on successfully, and now gives promise of a long and useful career. 6thly. In this, that a knowledge of the English language is now made imperative, every student being required to attend the Minister's Madrissa for the pur-

pose of acquiring that most essential requisite of a professional education. 7thly. In the preparation of a set of text-books, the first of which on the "Principles of Medicine," is now in the printer's hands. The materials of the remaining five books are in existence, but require management and revision before they can be sent to press."

In perfect accordance with that untiring desire for advancement which has always characterised Dr. Smith, not content with merely looking back over the way already traversed, he casts a glance into the future, and says:— "Much remains still for my succcessor to accomplish. A few of the points to which his attention will in all probability be directed, may be shortly indicated. 1stly. It appears to me most desirable now, that a monthly medical meeting of the city Hukeems, who hold the certificates of this school, be organized and kept up vigorously. This monthly re-union will bring the young men together, break down professional jealousies, encourage study and observation, and furnish materials for the Medical Journal. 2ndly. Another most necessary object, as far as the pupils are concerned, is the erection of a hospital for chemical teaching. 3rdly. Dispensaries are much required in the city, and the man who succeeds in starting a good midwifery hospital there, will hereafter rank as the Howard of Hyderabad. 4thly. The buildings in which are placed the dispensaries of the several talooks are not generally speaking, constructed for the purpose: the substitution for these of plain useful buildings, upon a fixed plan, is most desirable, and may be accomplished gradually. 5thly. Vaccination has made little or no progress in the talooks, nor has any formal visitation of the talook dispensaries been made since their institution.

"These and other points will probably claim my successor's attention, and will, with the labour of superintending the rest of the text-books, constitute a field of active exertion which the most zealous will have no reason to regard as too limited. May he enter upon his labours with courage, and prosecute them with energy and hope."

We look upon the appointment of Dr. Fleming to the Superintendency of the School as a pledge that the great work, still to be accomplished, will be laboured at with equal zeal and success. But it is a hopeful sign of the interest and importance attached to the institution by Government, that its new Principal will have the aid of an efficient Assis-

tant. Both Dr. Maclean and Dr. Smith broke down under the wear and tear of body and mind attendant on their responsible position, the onerous duties of which they both performed with either no assistance at all, or such as was merely nominal.

It will give a partial idea of the disappointment and discouragements under which the late head of this school has laboured, to state that only *one* in $5\frac{1}{2}$ or 12 out of 66 pupils, "have passed through all the courses and obtained their final certificates. Of the remaining fifty-four, forty-nine have left school at various stages of their progress, and five alone remain on the school-list. If one student out of five, whom the Superintendent has had the labour of instructing, perseveres to the end and secures his certificate, the proportion though small, is as favourable as past experience will warrant any one in entertaining."

On the late occasion of giving their diplomas to the passed pupils, the Resident at the Nizam's Court, Col. Cuthbert Davidson, paid a graceful and well-earned tribute to the zeal, ability, and general as well as professional worth of Dr. Smith. The Examining Committee in their Report have also done full justice to the out-going Superintendent, and the Secretary to the Government of India has doled out to him the usual "peppercorn of praise." It is to be hoped that some more solid and substantial evidence of appreciation than a few stereotyped phrases of approval and of thanks will yet be accorded to so earnest a worker and so successful a teacher.

The Fungus Disease of India. By H. Vandyke Carter, M.D., London: Professor of Anatomy and Physiology, Grant Medical College, Bombay.

The substance of this little pamphlet is a reprint of an article which appeared in No. VI. *(New Series)* of the Bombay Medical and Physical Society's Transactions. Although by no means a lengthy paper, we are inclined to regard it as a most important advance in a right direction, towards the elucidation of the natural history of a disease which has hitherto been somewhat of a puzzle to Indian practitioners. We purpose devoting some little time and space to an

analysis of the author's views, quoting such passages *in extenso* here and there, as may be necessary to the clearer understanding of the same. In these days of progress when an author who has stumbled upon a new fact in science, generally occupies one or more goodly sized volumes in endeavouring to place it in all its bearings before the public, we may congratulate Dr. Carter in having said all that he felt it necessary to say, in a pamphlet of such very moderate dimensions. If some wordy and diffuse authors, whom we could name, would only follow this excellent example, the reviewer's task would be much less toilsome and dreary than it too often is.

The disease which Dr. Carter, in the pamphlet before us, attempts to elucidate, is one of especial interest to many practitioners in this Presidency, as it occurs with greater frequency perhaps in some of the Collectorates of Southern India, than any where else. Notices of this peculiar affection may be found in several of the Madras Dispensary Reports published annually by Government, and the 12th Number of the Indian Annals of Medical Science, contains a valuable paper by our esteemed friend and contributor Dr. Eyre, on the peculiarities of the disease.

Mr. Godfrey, late of the Madras Establishment, in his report on the Bellary Dispensary for 1844, recognised the disease as one *sui generis*, and proposed to term it "*Morbus tuberculosis pedis*." Dr. Gill of Madura in his report for the year 1842, gave a description of the disease, which for the most part figures in the returns as "*ulcus grave*." It is very common indeed in the Madura district. Dr. Colebrook, during the ten years he was Civil Surgeon there, performed amputation of the affected limb in upwards of 80 cases. In Bellary, Cuddapah, and Guntoor, it is likewise very frequently met with.

In the Bombay Presidency, distinct observations of the "fungus" disease, have not been common. A few cases from time to time have been admitted into the Jamsetjee Jeejeeboy Hospital, and Dr. Ballingall in the 2nd No. (New Series) of the Bombay Medical and Physical Society's Transactions, gave a description of a case, and of the microscopical appearances of the diseased structures, which shows very clearly, that the distinguished officer named, recognised, although indistinctly, the true nature of the affection. The disease appears to be well known in Kutch, Kattywar, Guzerat, Sind and the Deccan. Lately, according to Mr.

P. A Minas, some cases of it have been observed in the Upper Provinces of the Bengal Presidency.

Dr. Carter thinks he has met with two varieties of the "fungus" disease—a disease which he considers is distinguished by organised particles, or masses of undoubted fungoid structure, present in the tissues implicated, besides being frequently found in the discharges. These particles or masses of fungi, he regards as the exciting cause of the disease, and not merely accessory or secondary phenomena.

The description of these two varieties with typical cases, we must quote entire, to place the subject fully before our readers. Here is a case of the *First Variety.*

"*No.* 1.—Pandoo, Hindoo, aged about 35 years ; farmer or cultivator of grain by occupation ; residence about 15 koss from Poona, in the Deccan. Admitted in the J. J. Hospital, September 21st, 1859. His right foot is much enlarged, particularly about the ankle : the general form of the swelling is oval, and somewhat resembling that of extensive scrofulous caries of the part ; the skin is thrown into coarse corrugated wrinkles. On either side of the ankle-joint, and on the dorsum of the foot, near the toes, and also in the sole, at this part, are numerous small soft swellings or tubercles as large as a pea, or marble, having puckered apertures, or fistulous openings connected with them ; and at these points the skin appears lighter in colour than elsewhere. The tubercles may be seen in all stages—from a slight elevation of the surface to an accuminated point, and there a puckered fistulous orifice appears. They are most numerous about the ankle, particularly the outer, where nine or ten may be counted, and on the dorsum of the toes there are nearly as many ; some of the spots appear as if cicatrized. On introducing a probe into one of these apertures, a long but not tortuous sinus is entered, which frequently leads to neighbouring bone, but not always. A discoloured glairy sero-purulent fluid exudes on pressure, and frequently a few black gritty particles. The discharge is not like the thin curdy pus of a scrofulous abscess. The toes are distorted, and displaced upwards, and the muscles of the calf of the leg are atrophied. The patient is emaciated and cachectic ; he has never had syphilis. The disease is of 12 years standing, and its history is as follows. When wading in a nulla, a thorn stuck in the sole of the foot, bleeding followed, and an abscess formed, the size of a walnut. The swelling began to spread, without much pain, from the sole of the foot and toes, towards the ankle, which became implicated only a year since ; amputation of the leg was performed by Mr. W. G. Hunter, October 3rd, 1859, and the patient made a slow but complete recovery.

"The appearances thus detailed appear to be peculiar to this disease, although the swelling and imbedding of the toes are frequently

much more marked. The amputated member was examined by me within two hours after removal, and the appearance of the section I made a coloured drawing of at the time. It needed but a glance to see that the characteristics of the disease were numerous black masses studed throughout both hard and soft parts.

"The lower end of the *tibia* has imbedded in its cancellous tissue two isolated and spherical masses, the size of a marble and of the darkest pigmentary hue. The anterior portion of the *os calcis* is occupied by a still larger and more irregular mass, composed in part of smaller black, spherical, masses, and also of a fleshy substance intermixed. Beneath the skin, at the fore part of the dorsum of the foot, are numerous, round, dark-coloured tubercles, which are seen to be composed of black spherical particles, aggregated together. The extensor tendons of the toes have been displaced, and consequently the toes themselves, by this collection. Beneath the first phalanx, and heads of the metatarsal bones are other masses of the same appearance, and before and behind the ankle-joint are also fleshy masses, dark with pigment. All the other tissues and parts exhibit a normal appearance, for there is little of that elephantiasis-like thickening of the skin which frequently co-exists with the fungus growth. There is no deposit in the cancelli of the bones, or that blending of the parts that one observes in cancer; the black masses may be picked out quite clean, and appear to be inclosed in a membrane which lines the cavity or space they are contained in. The articulations are neither inflamed nor ulcerated. There is no caries; the osseous tissue having been removed by mere absorption.

"Several of the black bullet like masses were removed and are now preserved in a dry and moist state, retaining in the latter condition their first appearance and structure. The bones were macerated and are now in the Grant College Museum."

The microscopical characteristics of this variety of the fungus are stated to be as follows:—

"This species appears in the form of globular masses the size of which may be compared to a pins head up to a bullet; their consistance is firm and friable, and their external surface of a deep black color, and studded with minute tubercles which give the masses a mulberry appearance on being magnified.

"A sectional surface presents a radiated appearance, and is of a rich deep brown colour. Some of the masses readily break up along the course of these radii, and have then a softer consistence, like that of decayed wood, in other cases this disposition is not so apparent.

"The general form is not in all cases perfectly spherical, sometimes one or more masses seem to have blended, or the growth has been irregular. The minute structure is as follows:—The larger masses are composed of fasciculi, which radiate towards the surface

in a very regular manner: they frequently branch and blend with neighbouring fasciculi; they appear somewhat knotted, and are cylindrical in form. Their peripheral extremities, and in some cases, the lateral branches, bear one or more dark-colored terminal, globular, and very firm expansions, the varying size and projection of which give the tuberculated appearance of the exterior before alluded to. Their diameter was found in one specimen to range from $\frac{1}{150}$ in. to $\frac{1}{400}$ in., the globular dilatations are frequently $\frac{1}{120}$ in. or larger, in diameter.

"The branching fasciculi appear to be chiefly fibrous in structure, being made up of very minute fibres which branch and inosculate, and are apparently homogenous throughout: numerous granules are intermixed, and frequently a large cellular beaded fibre may be seen among these smaller ones. Such cellular beaded fibres form the great mass of the globular dilatations; they are seen of all sizes, branching and giving off inflated cells laterally, or ending in such: most are clear, some granular and nucleated. Irregularly interposed may be seen the spores. Diameter of fibres $\frac{1}{6000}$ to $\frac{1}{3000}$ in.

"Such is the structure of those masses which are softer in consistence, and readily break up in the radiated manner described.

"In other cases, the whole mass throughout is more friable, and appears to be made up of the beaded fibres so aggregated as to give the impression that the entire mass is built up of elongated cells regularly apposed. These are of equal consistency throughout.

"It would seem that the *smaller masses* are nothing more than the clustered and dilated extremities of the fasciculi composing the larger masses, having become probably detached, or cast off from their external surface: in the very small granules (less than a pin's head in size) the place of detachment may be seen.

"The general shape is highly lobulated, and flattened. Their structure is similar to that of the parts before described,—close-set, elongated, and branching cells forming fibres, radiating towards the surface and having interspersed amongst them, it would seem in greater abundance than before the detachment of the cluster, the cells which form the *spores*. These are oval, clear, or granular, with a spurious (?) nucleus, $\frac{1}{800}$ to $\frac{1}{2000}$ in. long diameter, thick walled, and frequently seen to be giving off prolongations which become beaded fibres: sometimes they appear to have been ruptured.

"These black granules are found along with the larger masses, or by themselves, in some of the deep-seated sinuses; they form a characteristic element of the discharge from the sinuses, being thus conveyed towards the exterior. They are imbedded in a fleshy mass, presenting:—1. Myriads of small cells, some clear, compound, oval, dividing. 2. Numerous large granule cells (black), others light, round, or irregular. 3. A frame-work formed of what appears to be a close network of tubes, crammed in some places with large clear vesicles, or like blood-vessels. Fat globules and crystals abound.

"Investing these curious and striking black masses, and lining the cavities in which they are lodged, is a rather tough, fibrous membrane, somewhat adherent, particularly to the smaller particles. It contains numerous oil globules, is very soft and fleshy on its inner surface, and is prolonged towards the skin by funnel-shaped processes which terminate at one or other of the apertures seen on the external surface: structure obscurely fibrous, with nuclei. The *mycelium* of this species is unknown, unless it be represented by the soft tissue in which the smaller particles are imbedded, which I am not prepared to deny, until a thorough examination of a perfectly fresh specimen shall furnish correct data for an opinion.

"What has been previously termed by me the *second variety* of this disease includes probably several forms which may eventually have to be distinguished.

"My observations are founded on the examination of 8 or 10 examples now in the possession of the College.

"The fungi are in all cases in the form of small, or even minute particles of a whitish-brown or pink colour. We may distinguish the following:—

"1. Separate, light-coloured, particles, so minute, that they are only just visible to the unaided eye: very numerous, and plentifully discharged from the sinuses.

"When magnified, found to have a tuberculated exterior, and to be composed (apparently throughout) of very distinct and unmistakable beaded cellular filaments, similar in appearance, but smaller, to those found in the first variety.

"Imbedded in a greenish slough-like glairy substance, which, on exposure to air and the action of spirit, shrinks into mere shreds. It is stated in my rough notes to be composed 'of numerous filaments, forming a kind of net-work, with much granular matter, oil globules, and granular cells. The filaments appear, in many cases at least, to be hollow, &c.' I regret that this description is so incomplete, as my present conviction is, that the substance referred to may represent the *mycelium*, and the fungi, *spores* spontaneously generated in it. No other similar case has yet come into my possession, and this one gave a clue to all the rest.

"2. Single, or compound particles, brown or bright pink coloured, visible as reddish grains to the unaided eye; very numerous.

"Form oval and regular, when single: frequently double or quadruple, triple, or dividing into six or eight, then each particle is angular in form; often cuboid.

"Ultimate structure obscure: no cell-wall or nucleus; uniform throughout, and either of minute beaded fibres, or more likely made up of *very* minute rounded nuclei, which escape on bursting. Intermixed are spheroidal masses of fat crystals, many fat globules, which, like the *fungi*, are tinged pink, so that the uniform reddish color of the fleshy substance in which they are found is owing to

both structures. This matrix *(mycelium ?)* was probably similar to that described in the last case.

"3. Light coloured or brownish granules, compared to poppy-seeds, or mustard seed, &c.; very distinct to the eye, and often aggregated into mulberry-like masses of varying sizes: very numerous; consistence compared to that of cheese.

"Structure, in all cases composite; each granule being formed by the aggregation of minute bodies, which resemble more or less the separate particles above described, dozens of which must go to form a single granule. Every minute particle is surrounded by an investment of crystals, giving the appearance of a wreath or fringe to each: they are structureless, and of a fatty nature, and may equal in length the radius of the fungus particle. The mulberry-like masses are but aggregations of these granules. Spherical clusters of granules may be seen $\frac{1}{400}$ — $\frac{1}{500}$ in. in diameter.

"Fatty crystals and oil globules are abundant. The fleshy matrix above noticed probably exists in a modified form, but as no *fresh* specimen has reached me, no conclusion can yet be made.

"4. Of this variety, I speak with some hesitation: but it may turn out to be a transition state from the *black* to these *light coloured* species: the colour is that of mahogany. Its peculiarity is as follows; with many of the appearances of the last described, as regard colour, form in mulberry-like masses, &c., it has the structure of the *black* variety: only the beaded fibres are not distinct. The smaller granules very much resemble in form and size those of that variety. Spheroidal masses of acicular crystals, perfectly white in colour, are abundant: they are probably fatty in nature. (From Bellary.)

"Such are the results of many careful examinations of these specimens; and it will be evident that the subject, being new, is as yet but very imperfectly investigated.

"As to the *relation of the two varieties*, I do not venture to offer a decided opinion; but will leave those interested to make their own deduction from the following statements:—1. That the external appearances in both cases are similar. 2. The structural changes also seem so. 3. The clinical history is also the same.

"With regard to the fungi I observe that, although they differ materially, yet there are indications of transitional forms.

"The conclusion that the two varieties are closely related, will not appear to many to be far-fetched.

"That the *individuals included in my second variety* are possibly *identical*, may be surmised from the following circumstances:—

"1. There is general similarity of size, thus the fungi measure in diameter—

$\frac{1}{43} - \frac{1}{100}$ in.	$\frac{1}{43} - \frac{1}{130}$ in.	$\frac{1}{43} - \frac{1}{87}$ in.	$\frac{1}{43} - \frac{1}{80}$ in.
Case of the woman (p. 13.)	Madura specimen.	Bellary specimen.	College specimen.

judging from a few average measurements.

"2. Their *form* presents all intermediate gradations from the case of the woman to that of the College specimen, which the Bellary one resembles, as well as, lastly, the Madura foot.

"3. The *colour* too has its gradations amongst them.

"4. Their *number* and *general disposition* is the same.

"5. The foot is very *similar in appearance* in all cases.

"Their minute structure is, however, not the same: in only one case is the *fungus* absolutely determined to be such, but in every other instance, the appearances are only negative, and, I may add, unlike any other body I am aware of, animal, vegetable, or mineral. That in these cases the fungus has undergone some change, *e.g.* died, and degenerated, is not unlikely; for as before said, there are indications of the original structure when carefully looked for. I feel confident that something of the kind will turn out to be correct.

"The crystalline coat, or fringes, which form such a striking feature in the more frequent varieties of the disease, are doubtless of a *fatty* nature: the general appearance, want of structure, and action of re-agents as æther, soda, potassa, acetic acid, have satisfied me on this point. The co-existence of numerous oil globules, and undoubted fat crystals in all cases, is confirmatory. They are not *essential* parts, as their absence in the Madura specimen, and the case of the woman, sufficiently shows. In the latter, I found some commencing to be formed around the fungus nucleus."

Dr. Carter considers that the crystalline coats, or fringes above described may possibly indicate death, or degeneration of the fungus, but they are often found in the early as well as in the advanced stages of the disease.

The second variety appears to be noticeable for the absence of the black masses of fungus growth. The progress of the disease is pretty much the same as in the first variety. The specimen of which the following is a description, was sent to Dr. Carter by Dr. Wilson of Madura, and the disease in this case is said to have been of four years' standing.

"*External appearance.*—The whole foot is enormously enlarged, spread out or flattened. It is not enlarged about the ankle joint so much as towards the front part; it is everywhere enormously spread out and thickened; and the soft parts beneath the toes are so affected, that the latter are imbedded and nearly hidden. Scattered over the dorsum of the foot, on the sides, and also in the sole, are numerous apertures, so characteristic of this affection. In their immediate neighbourhood the skin is white, and frequently the white patches join. The openings are placed on small tubercles or soft swellings, similar to those before described.

"*Sectional appearance.*—No distinction of parts evident on a glance; the small bones of the foot seem to be almost destroyed, leaving a paleish sloughy tissue, or, as it is in front, reddish colored

and of similar consistence. The tibia is atrophied and softened, and the *astragalus* still more affected in the same way, and the other remaining bones are almost destroyed, being scooped out or excavated as it were on all sides by the new growth. The *soft parts* are also very obscurely indicated. The skin is hypertrophied in it, the other soft parts, and in the bones cylindrical tunnels, and spherical cavities are to be seen, in which is imbedded the sloughy looking tissue ; this is very abundant towards the front, and as stated before of a pinkish color."

This pink color is stated to be due to the presence of very numerous, single or aggregated particles, very minute, (though distinct to the unaided eye) and scattered amongst the tissue. So bright was the color when the section was first made, that Dr. Carter likens it to a sprinkling of Cayenne pepper, and had to assure himself by close observation that the appearance described was not accidental.

The changes affected by the fungus on the bones of the foot with which the particles came into contact, are peculiar and characteristic of the disease.

The tendency of both varieties of the fungus to assume a spherical or globular form, is shown by the shape of the cavities it produces in the cancellated tissue of the lower ends of the tibia and fibula, and tarsal bones. These cavities vary in size from a pin's head to a bullet, and their walls are formed by open cancellous tissue. The osseous structure, according to the author, appears to be generally healthy in texture, and only removed or acted upon by the mere pressure of these new growths, or a little rarefied, as if from increased vascularity. In the specimens examined not a particle of pus, or anything like strumous matter was observed in any of the cavities, such as have been described.

The long continued irritation of the foreign bodies, however, generally induces hyperæmia of the periosteum, and consequent deposit of new bony tissue on the surface, giving a roughness, and thickness to the compact tissue, such as is usually seen as the result of chronic periostitis. As Dr. Carter correctly points out, these latter changes are not characteristic of any disease, although they complicate, and mask other pathological indications.

The *articulations*, Dr. Carter believes, are never primarily affected, but like the osseous tissue are apt to suffer in a secondary or indirect way, by the irritation of foreign bodies in the neighbourhood and by increase of vascularity. When the fungus masses protrude through a joint, the author has

found the edge of the articular cartilage cut through quite clear and straight, and with no thinking or degeneration of the synovial memberance as is generally observed in scrofulous affections of the joints.

Recent specimens plainly show that the cavities and tunnels formed by the fungus growth, are lined by a membrane continuous with the external surface of the part, and that this membrane starts from the opening on the surface like a funnel shaped tube, dipping towards the deeper structures. The presence of this investing membrane tends to conduct the contents of the cavities and tunnels to the surface, where they are continually being expelled in the discharges.

The real nature of the fungus particles found in the different varieties of the disease has not, we believe, been satisfactorily made out. We understand that Dr. Carter has submitted to the greatest living authority of the day on all that relates to Fungi—the Rev. J. W. Berkeley—prepared specimens of the different varieties, with a view to their being classified and named. Dr. Carter is inclined to class the second, or more common variety, amongst the *myxosporæ*, an order of fungi, in which the spores arise in the midst of a mucilaginous substance resembling the *mycelium*, and having no very distinct organization. The fleshy, glairy slough-like tissue, which Dr. Carter found in some of the specimens examined, may, he thinks, represent this lowly organized *mycelium*.

The order of fungi above noted, includes, according to Payer, most of the ento-phytal or ento-zoic species, and is represented by the "smut" or, "ergot" of cereals.

We trust Dr. Carter will communicate, in due course, the result of his further investigations, as to the true nature of the fungus, which chooses such a very inconvenient *habitat* as the human foot for its development. The members of the Medical profession practising in India, already owe him a debt of gratitude for his careful and accurate delineation of the pathological changes induced by the presence of this foreign body, and he will have the satisfaction of knowing that his name will be handed down to future generations of practitioners, as the first to solve an important problem in Indian pathology.

Now that some definite conclusions have been arrived at regarding the nature of the affection, it is high time that its nomenclature should be revised, and something more accurate than "*Ulcus grave*," *Morbus tuberculosis pedis.*

"*A peculiar disease,*" "*Podelkoma,*" "*Keeremagrah*" and other unmeaning terms, should be employed in describing it. The *Savans* of the Statistical Congress, in adopting Dr. Farr's new nomenclature and classification of diseases, have managed to ignore, several rather important ones, amongst which we may mention elephantiasis and beriberi; and they would probably open their eyes with astonishment, on being required to add a new parasitic disease to their list. This, however, must now be done, and we know of no better name than Dr. Carter's own.—"The Fungus disease of India," which, rendered into Latin, would be not only imposing, but sufficiently distinctive to express the real nature of the affection—an advantage of no mean importance in scientific nomenclature.

The mode in which the spores of the fungus find their way into the body, is not satisfactorily determined at the present time. The disease in almost every case yet observed has attacked one or the other foot, and there is no evidence of both feet being affected in the same individual. Men are more liable to the affection than women, and it attacks chiefly adults, whose occupations are rural, or agricultural. Dr. Colebrooke was of opinion that the symptoms usually showed after an accidental prick from the thorns of a species of Mimosa, which abounds on the "cotton soil" in the Madura District. He noticed that all his cases came from localities where cotton soil mostly prevailed, and a similar observation appears to have been made by Dr. Ballingall of Bombay. Dr. Carter is of opinion from the comparative size of the spores of the fungus and the sweat ducts, that it is possible for the former to be introduced without any breach of surface.

No one will be inclined to dispute the possibiltiy of such a mode of introduction, at the same time, the facts before us would rather indicate the *accidental* placing of the spores in a favorable situation for development, by means of slight external injuries to the cuticle of the feet, and the consequent contact of the soil, in which the germs probably exist. We look upon the fact, that the disease is almost, if not entirely, confined to *one foot* as a strong confirmation of its accidental origin. All observers are pretty well agreed that the germ of the guinea worm may find its way into the skin from without *via* the sudoriferous ducts, and in this disease it is by no means uncommon to find both lower limbs affected at the same time—both having been exposed to one exciting cause, as, for example, the contact of water

or soil containing the young animal; as both feet never appear to be affected at one time by the fungus disease, we must conclude that the evidence necessary to establish its introduction through the natural orifices of the cutaneous surface is still wanting.

The fungus disease is confined to certain places, and there can be no question but that peculiarities of soil in such localities, are favorable to the germination of the spores, which, when introduced beneath the skin of the human foot, increase and multiply in so formidable a manner. The opinion entertained by Drs. Ballingall and Colebrook that the "cotton soil" of India is peculiarly favorable to the production of the disease, tallies entirely with our own experience.

The composition of this cotton soil, and its mode of origin, are still "vexed questions" amongst chemists and geologists.

The old view that the soil arose from the decomposition of trappean rocks is pretty well exploded, by those who have considered the subject in all its bearings.

Its geographical distribution, and position, in connection with surrounding geological formations, renders it most probable that the soil in question has resulted from a combination of causes. By whatever means the soil might have been formed, it appears to be well suited for the purpose of sustaining the lower forms of vegetable life, being capable of containing a large amount of moisture, even in the dryest period of the year. We are not aware if any microscopical examination has been made of cotton soil obtained at a depth below the surface, but we should not be surprised to hear that it was rich in Diatomaceæ and other allied forms. Dr. Carter has submitted to examination specimens of soil from Madura and Guntoor, with, however, only negative results, as regards any fungus particles similar to those characteristic of the foot disease.

The prevailing soil of a locality has not, we think, been sufficiently considered in relation to its influence, in fostering or developing the germs, of morbific matters affecting the human body. We all know that clayey soils, and alluvium, retain, for a long time, in an undecomposed form, the exciting causes of cholera, typoid fevers, &c. Instances of this kind are not rare. Some few years ago a body of prisoners were employed in making a road in the Guntoor district, and in cutting away the soil, came upon a number of remains of persons who had died of cholera in the great

famine year of 1838. Cholera immediately broke out amongst the party, and was fatal in many instances. Later still, a party of coolies employed on a railway cutting near Salem, came upon a spring of very clear water, which was stated to be very cold and pleasant to the taste. Those who drank of it were seized in a few hours with cholera in a very severe form, and most of them died. In this instance the railway cutting passed through an old burial ground. We mention these instances to show that some soils have the property of retaining the elements of disease, much longer than others, and to draw general attention to the important bearing of the subject, as regards the prevalence of diseases which are endemic to a particular locality.

There is some reason for believing, on the other hand, that other soils instead of retaining noxious germs, have the property of oxidising them, or rendering them in some way innocuous. Take for instance, the comparative rarity of cholera, on soils which have their origin and rest upon sedementary laterite—and as shown by Mr. Day in his able paper on the Medical Topography of Cochin, the fact that the germs of Dracunculus do not exist, or if introduced soon perished in the laterite soil of the Western Coast.

It has been observed by geologists that the sedimentary laterite of India is unfossiliferous, and this is supposed to result from the nature of the rock being chemically unsuited for the preservation of organic remains, and not from the absence of animal and vegetable life at the period when the formation was deposited. The same peculiarity is observed even at the present day, where the rock appears on the surface, such spots being generally characterised by a poor and scanty vegetation, as if the soil was absolutely incapable of sustaining any plants but those most tenacious of life. This peculiarity will, we think, afford somewhat clearer views as to the influence of soils in determining the presence or absence of certain forms of disease. The fungus disease, so far as we know, has never been met with in situations where laterite is found. Guinea worm, according to Mr. Day, never originates in such localities, and if cases are introduced from elsewhere, the ova cease to propagate, and there is a considerable amount of evidence to show that epidemic cholera passes by such localities, with, not absolute impunity to the inhabitants, but its direst effects considerably mitigated. We have here open to us a most interesting and profitable field of inquiry, and one

to which observers will do well to give some thought and attention.

Leaving the subject of the origin of the fungus disease, and the influence of locality in its production, we must pass on to more practical matters connected with the means to be employed for its removal or cure. Unlike the guinea worm, this parasite usually makes its way into the deeper structures, and penetrates everything it comes in contact with, and hence its results are of much graver importance to the patient than the presence of the animal parasite would be. The spontaneous evolution of the entire fungus must be very rare, as no case of the kind appears to have been noticed by those who have had the largest experience in the treatment of the disease.

The "Madura foot" is considered incurable by the natives themselves. Amputation of the affected limb has been largely practised in the Civil Hospitals of Bellary, Cuddapah, Guntoor and Madura, and with uniformly certain results—the removal of the disease. Dr. Carter offers a practical remark, which is well worthy the consideration of those concerned—*i. e.*, that as the fungus particles occasionally are found rather high up in the medullary structure of the long bones of the leg, and also in the soft parts, amputation should be performed at a sufficient distance from the affected foot to ensure the complete removal of the diseased structure. He instances the case of a woman affected with the disease, who had the foot amputated at the ankle joint by Symes' operation, and in whom the disease returned in the stump a few months after the operation, as a caution to leave no trace of the diseased tissues behind.

We are glad to see that several medical officers of this Presidency have aided Dr. Carter very materially, in his endeavours to arrive at correct conclusions as to the pathology of the fungus disease. Amongst others Dr. Carter offers his acknowledgments to Messrs. Colebrooke, Day, Wilson, Bidie, Eyre, and Cornish. It is pleasing to find a number of independent workers, all helping, according to their opportunities, to clear up a doubtful point in pathology, and we would venture to suggest that much more might be done in the investigation of the mysterious progress of epidemics, or of tropical diseases generally, if a similar amount of zeal and energy were brought to bear upon them. There would be less need for "Sanitary Commissions" and Special Commissioners to enquire into the causes affecting the spread

of epidemic cholera, if the practice were more generally followed, and the results systematically recorded and published.

Dr. Carter's pamphlet is illustrated by some very accurately drawn plates, explanatory of the general and microscopical appearances of the fungus disease. To those who are acquainted with the illustrations to Gray's Anatomy, which were drawn by Dr. Carter, no further proof will be needed that the talented author has faithfully depicted the characteristic appearances of the disease, he has labored so successfully to make clear. He may rest assured that whatever progress future investigators may make in its natural history, the name of Vandyke Carter will be honorably associated in all time to come, with "The Fungus disease of India."

The Physiology of Common Life. By G. H. Lewes, Author of "Sea-side Studies," "Life of Goëthe," &c., &c. In two volumes. W. Blackwood and Sons: Edinburg and London, 1859-60, post 8vo., pp. 940.

(Second Notice.)

In resuming our notice of Mr. Lewes' work we have pleasure in observing that he has been an attentive reader of Virchow's *Cellularpathologie,* and has much profited thereby. Writing upon the success that has attended transfusion of blood, he says:—

"It is only when there has been a dangerous loss of blood that any benefit can accrue from transfusion. In all cases of disease it is useless, or worse. The ancients, indeed, thought that by infusing new blood into an old and failing organism, new life would be infused; and wild dreams of a sort of temporal immortality were entertained. Completely as these notions are banished, the initial error of supposing that the blood *forms the organs,* and that if blood be *purified* the organs will be restored to health and vigour—this error is still general, even among men of science. It rests on a misconception of the laws of nutrition. Because the organs are nourished by materials drawn from the blood, and because, unless blood be duly supplied, the organs will decay, it has been supposed that the point of departure of nutrition was in the blood itself, and that the blood formed the organs. It is not so. The organs are, many of them at least, in existence before blood appears; and even afterwards the process of nutrition always

consists in the assimilation of certain materials from the blood by the organs; not in the organisation of this blood itself. In vain will you carry generous food to a sick stomach—it cannot digest the food; in vain will you carry young blood to old organs—they cannot draw their youth from it. The blood is always young, for it is always being renewed. The organs get daily older, and different. Between the blood of an infant and the blood of a patriarch, no appreciable difference can be found; but how great is the difference between their organs! That which is true of old age, is likewise true of disease. The tissue which is in an unhealthy condition cannot be made healthy by bringing to it a "purer" blood (were such obtainable); it can only be brought back to its healthy condition by the cessation of those causes which keep up the morbid action, and these are not in the blood."

This appears to us to be not only the truth, but the truth extremely well put. Surely Mr. Lewes must have had a whole host of blood purifiers in his mind's eye, from Morison, Holloway and Dr. John Townshend—of Sarsaparilla notoriety—to those legitimate members of our profession who look on the blood as the universal *fons et origo mali.*

We have no intention of following Mr. Lewes throughout the whole of his treatise, but there are some very sensible remarks in his chapters on Respiration, which we cannot resist quoting. He says:—

"Reduced to its simplest terms, Respiration appears to be nothing more than the interchange of carbonic acid and oxygen, which takes place between the blood and the atmosphere. Our analysis comes down to this; and yet we shall be led into error if we accept this as the true answer to our question; for this is the *physical fact* implied in the process, it is not the *vital function* itself. This physical fact is not only manifested by the breathing apparatus, but by every tissue in the body, even when it is separated from the body. Take a fragment of muscle, rid it of its blood, and leave it exposed to the atmosphere; it will absorb oxygen, and give out carbonic acid. But no one would say that the muscle breathed; because breathing is an animal function, not a mere interchange of gases; a function dependent upon this interchange, but dependent *also* on the organic apparatus which performs it. We are thus led to distinguish between respiration as the *function of an apparatus of organs*, and that interchange of gases which is merely a property of the tissues."

Our author continues the argument through several pages, and we think him perfectly right in speaking of respiration as a vital process for which a special organ has been set apart; and in stating that those who say that the essence of res-

piration consists in the interchange of gases,—so that wherever a nutritive fluid is in contact with the atmosphere, respiration must take place,—are confounding the *result of the action of the organ* with the *action of the organ itself.* There is no accurate correspondence between the amount of oxygen absorbed and of carbonic acid exhaled, as there should be were the process one of simple exchange; the interchange does not take place exactly in obedience to the law of the diffusion of gases.

Mr. Lewes next attacks the popular theory which declares respiration to be a process of oxidation. He says:—

"It probably caused the reader a pleasant feeling of surprise when he first heard that the burning of a candle, the rusting of iron, and the process of breathing, were only three forms of the same process—their names for three different forms of combustion or oxidation. There is, indeed, a fascination in such generalizations. One almost regrets to find them not correct. The burning of a candle and the rusting of iron are, indeed, two forms of one process of combustion. They are oxidations; but respiration can no longer be considered, in any sense, a process of oxidation. The combustion theory is a mistake from first to last. Respiration as a process is two-fold, the exhalation of carbonic acid, and the absorption of oxygen."

He cites the experiments of Priestley and Claude Bernard, by which it was shown that a candle will not burn in an atmosphere of 15 per cent. of oxygen and 2 per cent. of carbonic acid, but that a linnet will breathe in such an atmosphere for some time; that a candle burns brightly in an atmosphere composed of half oxygen and half carbonic acid, in which an animal instantaneously perishes; that the removal of the carbonic acid by the introduction of potash revives the animal when about to expire in vitiated air, but has no effect upon the expiring candle. The candle expires because there is not enough oxygen in the air; the animal expires because there is too much carbonic acid in the air.

"Further, to prove that respiration is an exchange of gases in the lungs, and not a process of oxidation, we need only refer to the experiments of Spallanzani and W. Edwards—experiments so celebrated, that one is amazed to find one's-self citing them in this discussion, which they ought long ago to have closed."

These experiments showed that cold-blooded, and newly-born warm blooded animals will breathe in an atmosphere of pure hydrogen, continuing to give out carbonic acid. The proof afforded by these experiments is that carbonic acid

pre-exists in the blood and is not formed during respiration by the entering oxygen; but they

"Prove, likewise, that the respiratory process is a double one of *exhalation and absorption*, which can take place as well with hydrogen as with oxygen; we are thus forced to exclude the idea of oxidation altogether. Although respiration can take place without oxygen, life will not continue without it; for oxygen is the power which *burns* organic matter into life."

With reference to the word in the last sentence which we have italicised, it would be supposed that Mr. Lewes falls in with the view that "the oxygen of the air *burns* the carbon of the tissues into carbonic acid, and the hydrogen into water." But no! He says that there is not one bit of direct evidence that this hypothesis is correct; it is purely inferential, and there are many reasons against our accepting it even hypothetically. "If oxidation of tissue is *one result* of respiration, it is not the *process*."

Mr. Lewes has laid great stress upon the importance of verbal distinctions in science. But we do not find that he is himself quite clear in the language which he employs in his arguments concerning respiration. We find him on one page arguing that the process is *not* one of simple exchange, and a few pages further on stating that it is not *oxidation*, but *exchange*. We do not mean to say that he is not quite correct, and that a very little explanation—a clear verbal distinction—would put the matter right, but "people who live in glass houses should not throw stones."

In the copy of Mr. Lewes' work which we possess, the second volume commences with a preface—from which we make the following quotations without comment—

"I have been forced to depart very widely from the practice of other popular writers, who consider themselves bound to act as "middle-men" between scientific authorities and the public, and to expound facts and doctrines as they find them. I could not adopt this easy and convenient plan. I could not bring myself to publish, on the authority of respected names, statements which I knew to be false, and opinions which I believed to be erroneous. After having laboured earnestly to get at the truth, it would have been disloyal to contribute in any way to the spread of what I believed to be error. All that I felt bound to do, was to state impartially the facts and opinions current among physiologists; and when those opinions seemed inadmissible, to state the reasons for their rejection. There is therefore a great deal of criticism and much original matter in this work."

"The literature of each subject has been given with as much fulness as seemed useful; and never at second hand, unless specially acknowledged. The deficiencies in this respect will be found greatest in the English department; the reason of which is, that my purse is not long enough to command the Transactions, Journals, and Reviews, in which my countrymen have recorded their labours; and I have not the advantage of commanding a public library. It has been my desire to render every one his due; but of course a great many claims have been passed over in ignorance."

The greater part of this second volume is devoted to the consideration of the functions of the nervous system, and as Mr. Lewes tells us, it is here that "the greatest amount of dissent from current opinions will be found." He very properly points out at the commencement of the volume, that the "Physiology of the nervous system must be studied free from all controul on the part of psychologists. If we do not prescribe conclusions for them, neither must they prescribe conclusions for us. To them we leave the laws of thought. To us they must leave the difficult task of ascertaining the relation between sensation and the various parts of the nervous system." And then he produces a kind of electric shock upon his reader by the statement, "I do not agree in the opinion respecting the brain as 'the organ' of the mind. One of the principal conclusions to which fact and argument will direct us in these pages will be, that the brain is only *one* organ of the mind, and not by any means the exclusive centre of consciousness." He tells us that for many years he devoutly believed the hypothesis which has now settled down among the respectable and respected conclusions of philosophy, but that his various researches have led him "not only to a different conception, but also to understand the source of the original error." Of course in making a statement of this kind it is necessary to give very definite meanings to the terms employed, so we find our author first gives us his idea of the meaning of the word mind. It does not designate the intellectual operations only; it has a broader and deeper signification; it includes all sensation, all volition, and all thought; it means the whole psychical life. The brain is a noble part, its functions are noble; but it is only the organ of special mental functions; it is a centre, a great centre, but not *the* centre. It is not the exclusive sensorium. Its absence does not imply the absence of *all* consciousness. It cannot therefore be considered as *the* organ, but only as *one* organ of the mind. There are other centres of sensation and volition besides the brain.

The nature of the nerve force next comes under notice. The hypothesis of "Animal Spirit" is dethroned, but let no one insult it, it served its purpose, and the "nervous-fluid," which replaced it, is not a whit more scientific. The physiologist must consider nerve-force as something special—only found in the living nerve. Now in connexion with this part of the subject we are really indebted to Mr. Lewes for the introduction of a very convenient word, viz., *neurility*. Nerve-force is decomposable into *two* very different forces, corresponding to two very different nerve-tissues; *sensibility* (already in use, although restricted to the brain), the property of ganglionic substance; and *neurility*, the property of nerve-fibre. When a nerve-fibre is stimulated its Neurility will be called into play. If the fibre be in connexion with the brain, or spinal chord, the effect is a *sensation*. If with a muscle, *contraction*. If with a gland, *secretion*.

A short description of the structure of the nervous system follows. We have nothing here to notice beyond the experience of Mr. Lewes, that, in more than a thousand preparations, he has seen a direct connection between nerve-fibres and the prolongations from caudate cells only half-a-dozen times, and therefore it would be incautious in the highest degree to make this supposed connection between cells and fibres the basis of any physiological inferences. Yet many German and French writers are now doing this.

Our author next puts the following questions:—"Are the nerves conductors only? and what do they conduct?" In his reply he first notices that the nerves are generally likened to the conducting wires of a galvanic battery, which notion, he says, is based on the misconception that the centres *produce* a force which the nerves, as passive conductors, *transmit*. His view is that a nerve itself, even during absolute repose, is the workshop of a development of force, of chemical and electrical changes; that, so long as it is living, so long as the necessary nutritive changes can be kept up, it has a property not derived from the centre, but belonging exclusively to itself. This, he says, has been demonstrated by Dubois-Reymond. This it is which he calls *neurility*. And he thinks its existence manifested by the fact that when a motor-nerve has been separated from its centre, it is still capable of causing contraction in the muscles upon the application of electricity. That the force is not simply accumulated in the nerve, being original-

ly received by it from the centre, has been shown by exact experiment; for by repeated irritation it becomes exhausted, and yet, if allowed repose, it recovers its activity, and, on being irritated, will again cause muscular contractions. "The battery is removed, and lo! the wire is found to be galvanic."

He acknowledges that "numerous physiologists have noticed the facts which prove that the nerves are something more than mere passive conductors, but (he adds) I am not aware that any one has seen the full significance of these facts, and has proposed to connect them with a property inherent in nerve-fibre, and essentially differing from the property inherent in ganglionic substance, or nerve-cells.

Mr. Lewes is perfectly correct in the statement contained in the first clause of the preceding sentence. Todd and Bowman remark that "in propagating the influence of a stimulus, either from periphery to centre, or *vice versa*, nerves are not mere passive conductors. The whole extent of the fibre between the point stimulated and its peripheral or central connexion is the seat of change. * * * A morbid fluid impregnating a nerve at any point may irritate it, or may suspend or destroy its *inherent property* by modifying its nutrition." It is universally recognised that the texture of the primitive nerve-fibres—their physical condition—must be preserved in a healthy state, in order that their function may be performed in a normal manner.

It is also universally recognised that the origination of power is very different from the transmission of power, and therefore that the property inherent in nerve-cells is different from that inherent in nerve-fibres. The fact is, the action of nerves can only be provoked by stimuli. As Mr. Lewes says, speaking of the sciatic nerve separated from the centre, "anything which stimulates the nerve causes the muscles to contract." So that we cannot give our author credit for having made any great discovery here, though we gladly accept his term neurility to designate the property, which all nerves possess, of producing certain effects upon the application of a stimulus. As the ordinary stimulus to muscular contraction is nerve-force, so the ordinary stimulus to nerve action is from the nervous centre; but, further, as muscular contraction can be directly excited by other stimuli—chemical or mechanical—so nerve-action can be called forth by electrical or mechanical stimuli affecting the nerve in any part of its course. A state of *polarity* is

induced in the particles of the nerve, in all probability, as Todd and Bowman remark, by a *molecular change* rapidly propagated along the course of the nerve from the point of application of the stimulus.

"What is Sensibility?" next engages attention. We must here quote Mr. Lewes.

"This very interesting and important question has become involved in a cloud of obscurities which would vanish if that strictness of nomenclature, to which I have alluded, were adopted in physiology, as in chemistry and physics. The philosophic reader will learn with surprise that many eminent men are at present disputing whether the seat of sensation is itself sensitive, whether the seat of intelligence is also the seat of consciousness, and whether there are not separate parts of the spinal chord devoted to the *transmission of sensibility*—as if sensibility were a thing to be carried from one part of the body to another!

"It is found that cutting, pinching, tearing, or galvanising the grey matter of the brain or spinal chord produces no sensation whatever. The fact is doubtless surprising at first. We know that the brain is a seat of sensation, that impressions made on the nerves going to the cerebro-spinal centres produce no sensation unless those centres are affected; yet we see a man or an animal submit without the slightest wincing to have a slice of his brain cut off, or the grey matter of his spinal chord pricked or cut. The explanation is easy. Sensibility is the inherent property of the ganglionic tissue forming the grey matter of the nerve-centres. This property is stimulated into activity by the neurility of the nerves, but is *not* stimulated by those mechanical irritations which suffice to stimulate the nerves. The pinch, or prick, which awakens the activity of the nerve-fibre, leaves the nerve-cell dormant. You are not surprised if the pistol hangs fire when the percussion-cap is removed or spoiled. In vain the hammer falls, no explosion takes place; because to produce an explosion of the gunpowder, a spark is necessary, and that spark is received from the percussion-cap. It is the same with Sensibility. The hammer first acts on the cap, the cap does not transmit the *blow*, it produces a spark, and the spark makes the powder explode; the irritation acts on the nerve, the nerve does not transmit this irritation, it has its own neurility excited, and *this* awakens the sensibility of the centre—when the nerve goes to a centre; when it goes to a muscle it awakens contractility."

The reader will now be prepared for the argument of the author, but lest he should not be completely so, we are informed that "it is necessary that we make another reform in our phraseology, and cease to confound the idea of *property* with that of *function*." The property of a nerve depends

on its structure, belongs to it as a nerve, and does not arise from its connection with any other organ. The function of a nerve depends upon its connection with other parts; it is the use to which the property may be applied. Cæteris paribus, so long as structure remains, property is invariable. Functions vary as the nature of the organic connections vary. From these principles this axiom is induced: *Identity of structure everywhere implies identity of properties.*

But no physiologist, to our author's knowledge, seems to be aware of his violation of a first principle when he ascribes sensibility to the ganglionic substance of the brain, and denies it to other masses of ganglionic substance absolutely identical in all fundamental characters. There are no structural distinctions between the various ganglia; the differences, such as they are, are *morphological*, not *histological;* and therefore it is simple logic to conclude that there being one *common tissue*, there must be one *common property*, in brain, medulla, and chord. And experiment verifies this logical deduction that the spinal chord is in all animals a seat of sensibility; and in some animals the all-important seat.

For Mr. Lewes's purpose it is absolutely essential that this position should be first taken up. He says:—

"The only escape from the logic of this argument is to deny that sensibility is a property at all, and to call it the function of certain nerve-centres. But against such an issue, two obstacles are placed—First, if we refuse to consider sensibility as the property of ganglionic tissue, we shall have to declare what *is* the property of that tissue, manifest whenever the tissue is in activity, and common to all nerve-centres; secondly, I shall hereafter show that all the phenomena we indicate by the term sensibility are exhibited when those nerve-centres, generally supposed to be its exclusive organs, are removed."

Our author proceeds in the next place to the discussion of the question, are there two kinds of nerves: sensory and motor? He alludes to Sir C. Bell's discovery that of the two roots of a spinal nerve, the anterior is the channel for muscular stimuli, and the posterior for sensitive impressions, which anatomical discovery he acknowledges to be unimpeachable. But it has been supposed that the facts enunciated by Sir C. Bell, imply a physiological distinction respecting the properties, or functions, of the two nerves; and this view, according to our author, is erroneous, "founded on a misconception, and in open contradiction with first

principles." Arnold was right when he declared that Bell and his followers had made the initial mistake of confounding *muscle* nerves with *motor*-nerves. But, except Mr. Lewes, no one acknowledges the truth of Arnold's view.

We do not intend to enter upon any arguments in favor of the views now held by the more advanced physiologists, or to show how they differ from, or how they may be reconciled with, those of Mr. Lewes. But we must just mention that so far as we are aware there is no physiologist in the wide world who does not consider the words motor-nerves and muscle-nerves as convertible terms. The very idea of motion implies muscle. But we shall see that Mr. Lewes gives a somewhat different meaning to the term muscle-nerve.

Pursuing his argument he says :—

"Our first effort must be to ascertain whether the supposed difference between the two nerves is one of property or one of function. It cannot be one of property because the structure of the two nerves is identical, and identity of structure, we know, implies identity of property. Moreover, it has been proved experimentally by Dubois-Reymond and Schiff, that both nerves conduct in both directions."

In a foot note Mr. Lewes says he has entered on the detailed proof of the identity of structure of the nerves in his paper read before the British Association at the Aberdeen meeting, and therefore he need only

"add that Schiff rests the structural distinction on the fact shown by his experiments, that although nerves which have been divided grow together again, a motor-nerve will not unite with a sensory nerve. The fact is valuable, but as we are at present utterly in the dark respecting the nutrition of nerves, we can found no conclusion as to their properties on any differences they may exhibit in nutrition. Schiff has himself proved that motor-nerves conduct both ways—centripetally and centrifugally ; and for my purpose that is all the proof necessary."

Now here we fall upon one of those little circumstances which caused us upon the first perusal of Mr. Lewes's volumes to look upon that gentleman as a most unscrupulous reformer. It seems perfectly natural for him to ignore or lightly explain away a fact which is fatal to his argument. There is another circumstance connected with the nutrition of nerves which, we presume, Mr. Lewes would explain away in a similar off-hand manner, we allude to the fact that when a nerve has been divided by a sharp

instrument, one of the extremities grows thicker and remains permanently tumefied, whilst the other extremity gradually becomes atrophied and disappears altogether at last. In the motor roots it is the central extremity which becomes thus thickened and enlarged, whilst the peripheral extremity becomes atrophied. In the sensitive nerves the reverse occurs, the peripheric extremity is enlarged, and the central extremity undergoes atrophy even up to its origin from the chord. M. Waller has confirmed this view in a beautiful series of experiments. He divided the motor and sensitive roots of several pairs of cervical nerves, and in twenty-four hours a microscopic examination showed that the posterior roots had already become opaque and granular—just the alterations which occur after death.* It is foreign to our subject to enquire into the ulterior changes that take place, but we may just notice that Mr. Simon has satisfied himself that it is a fatty degeneration, exactly similar to that which occurs in muscular tissue, in the cornea, and in the margins of the placenta at the full period of utero-gestation, when it is being prepared to be cast off.

But Mr. Lewes proceeds :—

"Is the difference one of function? There are doubtless many who never believed it to be one of property, but conceived that it arose simply from the fact that the anterior nerves played upon muscles only, and therefore only awakened contractility; and that the posterior nerves played upon the centre only, and therefore only awakened sensibility. This was the opinion I formerly held. But if this has been the opinion held by some physiologists, they have not given it precise and scientific statement—they have not urged the necessity of founding the idea of function on *anatomical distribution.* Had they done so, Anatomy would speedily have convinced them, as it convinced me, of the error of regarding the nerves as essentially distinct in function."

"(Anatomy) teaches that as regards the *centre*, the two nerves *agree;* and so far they must agree in function. It further teaches that as regards the *periphery*, the two nerves *differ;* and so far they must differ in function. Both are directly connected with the ganglionic substance of the spinal chord, and both must therefore have a similar functional relation to it; but as one is directly connected with the muscles, and the other with the skin, their functional relations to muscle and skin will of course be different. Nothing can be plainer; yet by an oversight which will one day appear astounding, physiologists have one and all disregarded the very im-

* See M. Claude Bernard's lectures on the Spinal Cord—"Medical Times and Gazette," Vol. I. 1861.

portant fact that both the anterior and posterior nerves are similarly connected with the spinal chord, and consequently must exercise a similar influence on it. Surely if one nerve can excite the ganglionic centre with which it is connected, a similar nerve, similarly connected, must also similarly excite that centre? To assume that of two nerves having the same property and similar connections, one only should exercise that property, and the other be utterly powerless, is a license of imagination which logic must reprove."

Our author goes on to say that the anterior and posterior roots differ in their distribution over the spinal chord, and that it is partly upon this difference of distribution that he explains the different *forms of sensibility* excited by each root. And he arrives at the conclusion that anatomy, philosophically interpreted, teaches the sensory function of both nerves. And as in the skin there are muscles, "insignificant enough, it is true," and as the posterior nerves are distributed to the skin, these cause the skin muscles to contract. Hence these nerves have a motor function. And "thus does anatomy assure us that both nerves are sensory and both nerves motor!" The sensibility which the muscle-nerves excite, is that which we call the muscular sense, by which we adjust the manifold niceties of contraction required in our movements. He says that Arnold, Brown-Séquard, and himself, proved that the posterior nerves (it will be observed that Mr. Lewes almost invariably uses the term posterior nerves to designate the posterior roots of the nerves), may be divided without destroying this muscular sensibility. But he does not tell us that Brown-Séquard is a strenuous supporter of Sir C. Bell's views, and an equally strenuous opponent of Mr. Lewes's opinions. Brown-Séquard says that "it seems very probable that there is at least a part of the sensations giving to the mind the idea of the state of a muscle, which passes along the anterior roots to go to the sensorium. But although I agree so far with Arnold, I do not admit with him that it is only through the anterior roots that impressions are conveyed from the muscles to the brain. When a galvanic current is applied to the muscles of a limb of a frog, on which the posterior roots of the nerves of this limb have been divided, no trace of pain is produced, and all the other causes of pain are unable to cause it, when applied either to the skin or the muscles. * * Even if the muscles have *peculiar nerve-fibres* which go up to the brain along the anterior roots to give these *some special*

sensations in correspondence with the degree of contraction, it seems, nevertheless, quite certain that the nerves of touch and those which convey painful impressions, do not pass by the anterior roots, and that, therefore, the theory of Sir C. Bell, as regards these nerves, remains entire." Brown-Séquard himself puts the word *peculiar* in italics; this, taken with the other italics, will be quite sufficient to indicate our view of the matter. But to return to Mr. Lewes's pages—

"Having proved," says he, "the sensory function of the anterior nerves, it is not difficult to prove the motor functions of the posterior nerves. They cannot move the muscles, simply because they are not distributed to the muscles, but they move the muscular fibres of the skin, and cause the contractions of the skin. Claude Bernard seeing the necessity of explaining the existence of sensibility in the muscles, and contractility in the skin boldly assumed—and has stated it as if it were a fact—that the posterior nerves sent off filaments to the muscles, and the anterior nerves sent off filaments to the skin. But anatomy will not support that assertion."

The last sentence is another of Mr. Lewes's bold assertions. We have no hesitation in saying that anatomy will *not* disprove C. Bernard's statement. It appears to us that Mr. Lewes altogether overlooks the fact that the anterior and posterior roots of the spinal nerves come together, and interchange filaments, and subsequently divide into nerves of communication and nerves of distribution. And that, therefore, some sensory fibres may be, and most probably are, contained in the nerves destined for muscles, and some motor fibres, in the same way, in those that go to the skin. Until Mr. Lewes has traced all the nerves of a certain portion of the skin in one uninterrupted course upwards from the periphery to the centre, and found that every individual fibre, whether it be a nerve of skin-sensation or one of skin-movement, passes to the *posterior roots* of the nerves, we cannot allow that his position is a tenable one.

It will be noticed that we do not here take any exception to Mr. Lewes's supposition that nerve-fibres are absolutely necessary for the production of contraction in the skin. But our readers will, at once, perceive that we are granting Mr. Lewes all he asks. We must not be supposed, then, to overlook the fact that the contraction of the skin is almost invariably manifested under the influence of cold, and that cold is a direct powerful excitor of the action of such muscular fibres, as are found in the skin. Mr. Lewes would anticipate that division of the posterior roots would

prevent the quills of the porcupine from rising up. An anticipation which we do not entertain.

We have before said that we do not intend to follow Mr. Lewes throughout his work with the endeavour of finding out and exposing his fallacies. Our readers will see, from the extracts we have given, that he writes remarkably well, and has a very commendable boldness in argument. He is certainly very ingenious, and we should not be at all surprised if any one possessing but a superficial knowledge of physiology were completely carried away by his line of reasoning.

From the extracts we have given, showing Mr. Lewes's view of sensibility as dependent upon structure, our readers will be fully prepared for his argument, that the *sensorium commune* is the sum total of all the nerve-centres; whilst each centre is itself a small sensorium. All nerve-centres agree in having one *common tissue*, and one *common property*, but they differ in their connections with other parts, and must therefore differ in their functions.

"The current view is this: sensibility belongs only to the centres within the skull, all other centres have only the property of *reflecting* impressions. By this reflection of impressions is meant that when an impression is made on a sensory nerve, and by it carried to the spinal chord, the impression there becomes reflected into a motion—the motor-nerve carries the impulse to a muscle; and thus an action results, unprompted, or unaccompanied by any sensation whatever.

"In direct opposition to this, I maintain that unless an impression on the sensory nerve excites a sensation in the centre, *no* motion whatever takes place."

Further on we have a definition of sensation and consciousness. Sensation is the active state of sensibility in a nerve-centre. Every excitation of the sensitive organism must be a sensation. These sensations will necessarily be very various, as the organs excited, and the exciting causes, are various; but they must all be sensations, they are all active states of the general property of sensibility. *Ergo*, they must all be elements of consciousness. The established doctrine implies that only those excitations of sensibility which attract attention are properly called sensations. Of these we are conscious. The rest are considered non-existent—unconscious impressions, which may lead to actions, but are not sensations. Such language cannot long be preserved. Insensibly writers are led by it into the glaring contradictions of unfelt feelings and unconscious

consciousness. Attention does not *create* it only *isolates* the sensations. We shall do well to hold fast by the maxim that *to have a sensation*, and to be *conscious* of it, are one and the same thing; but to *have a sensation* and to *attend* to it, are two different things. Attention is the direction of the consciousness—not the consciousness itself. The distinction between sensation and perception must also be preserved; the confusion of these two terms lies at the root of the current doctrine on the sensorium. We certainly must have many sensations which are not perceived at all. Thus, if two sharp instruments be made to press gently on each arm, we shall have two distinct sensations, both perceptible. But while the left arm retains its sensibility, if the instrument be pressed so forcibly on the right arm as to cause pain, we become totally unaware of the sensation in the left arm—we can no longer perceive the sensation caused by the instrument which, nevertheless, is pressing as before. Is the sensibility in the left arm destroyed? Not at all. Does the sensation cease to exist at the period when we cease to be aware of it? No; the impression has continued; the relation of the sensitive nerve to the centre has been uninterrupted, and the sensation must consequently have continued.

Such is the argument of Mr. Lewes. Let him choose his own words and give them a definite meaning, and it is all plain sailing.

Further, the law of sensibility is this: "*No sensation terminates in itself; it must either discharge its excitation in some secondary sensation, or in some motor-impulse. Generally it does so in both together.*"

As every ganglion is connected with other ganglia, and as the nerve-fibres which connect the two have their neurility excited when one of these ganglia is excited, the sensation awakened in the first ganglion not only discharges itself in a muscular contraction, or reflex action, but also in another sensation,—it plays on a muscle, and it plays on a centre. Mr. Lewes calls this *secondary* sensation reflex feeling, to mark its resemblance as a physiological process, to reflex action.

We shall see a little further on what our author's views of reflex action really are. It may appear that Mr. Lewes's innovations are slight, simply calling an impression by another name. But hear what he says himself upon this point.

"I request the reader particularly to observe that it is no merely

verbal difference which is established, when what is usually called an *impression* is here called a *sensation*, and when a *sensation* is distinguished from a perception, * * My dissent reaches to the very foundations. A verbal difference, carrying with it no important consequences, would not be worth so much labour as has been bestowed on elucidating this point. Those who say that an impression which is not perceived has no element of sensation in it, say that when the pre-occupied mind does not hear the roll of carriages in the street, the effect of the vibrations of the air upon the auditory centre has been no more than the effect upon the window-pane; a mere physical impulse has been given. Whereas, I aver that just as the window-pane reacts according to the properties of glass, so does the auditory centre react according to the properties of nerve-centres—and something more than an impression is the result: the impression is *sensitive*.

"It is surely much more than a verbal difference when one school asserts that some animals have minds, and other animals only instincts, and another school asserts that all animals have minds, but the minds of some are strikingly inferior in range, complexity, and energy, to those of others. It is surely more than a verbal difference when a philosophic naturalist, detecting the uniformities which underlie the diversities noticeable in the actions of animals, declares that they are all guided by sensations, and these are all due to a nervous system—in opposition to those who call the actions of some animals mental, and the *same* actions in other animals mechanical. And such is the difference between the view I advocate, and the view I combat. My view may be erroneous; at any rate it is not limited to a mere change of terms. If it be said, that since I admit a difference between sensation and perception—that is, between one sensation and another—this amounts pretty much to the ordinary distinction between an impression and a sensation; the answer is very simple; a naturalist admits the difference between two animals, admits that a monkey is very unlike an oyster, and that the two should never be confounded; but while they differ, they also agree; he classes them according to their differences, but their fundamental agreements make him range both under the general conception of an animal.

"* * * Ganglionic tissue has an inherent property, sensibility, which serves various functions in various organs; however complex any one of these functions, we should find, could we analyse it, that it was a complex of simple sensations. There is an incessant action and interaction of the various parts of the sensitive mechanism; sensations cross and recross, exciting and modifying each other; and the sum total is a feeling of existence. In the lower animals, with a simple nervous system, the sensitive phenomena are simple; as the organisation increases in complexity, the sensitive phenomena necessarily become more complex; the elements of general consciousness become more numerous."

We have endeavoured to give a condensed epitome of Mr. Lewes's views, using his own words and expressions as much as possible. The subject is a very important one. We have neither time nor space at our disposal, to enter upon its consideration, though we feel much tempted to endeavour to reconcile these apparently conflicting opinions of Mr. Lewes and the orthodox school. In doing so we should have, like Mr. Lewes, to select our own terms, give them a distinct meaning, and not allow of any departure therefrom.

We must hasten on to indicate some further views of our author.

Sensibility or consciousness, he groups under three heads: 1. Systemic-Consciousness; 2. Sense-Consciousness; 3. Thought-Consciousness.

Systemic-Consciousness includes all those sensations which arise in the system at large, chiefly in the organic processes, and form the more massive and diffusive elements of the sense of existence. All animals are conscious (have sensations), though all have not every form of consciousness.

Sense-Consciousness includes all those sensations which are derived from the organs of the five senses. As a rule, it is only these, and pain, which are admitted to be sensations at all, by those who fail to perceive the distinction between sensibility and particular forms of sensibility.

Thought-Consciousness includes all those phenomena of thought and emotion with which the psychologist concerns himself.

Some such grouping as the above is absolutely necessary for the author's purpose. We find no fault with it as a part of his scheme. The idea of systemic-consciousness is a very good one, taken in connection with Mr. Lewes's plan.

Some pages follow on the Brain and its functions, from which we must not stay to make any extracts. We must notice, though, that it is acknowledged that the popular classification into Thinking and Feeling, or Mental and Moral, are acknowledged as lucidly and broadly indicating the primary groups into which all psychical phenomena divide themselves.

"Let us, ideally, decompose these into six centres, three for each division. In the first group we may place Sensations, Perceptions, and Ideas—the various combinations of which represent intellectual activity. In the second group we may place Sensations, Instincts, or Appetites, and Emotions—the various combinations of which represent moral activity.

"Sensation thus forms the point of departure for each series. But we have already seen that there are various *kinds* of sensation, and that these fall into two distinguishable groups—namely, Sense-Sensations and Systemic Sensations. The first are derived through the organs of special sense—*i. e.*, Sight, Hearing, Taste, Smell and Touch. The second are derived from the Viscera, Muscles—in a word, from the system at large. * * *

"The externality of the Sense-Sensations, and internality of the Systemic-Sensations, creates a broad line of demarcation between the Perceptions which arise from the one, and the Appetites, or Instincts, which arise from the other; and these, in turn, issue in the very different forms of sensibility known respectively as thought and emotion."

It will be seen that the meaning given by Mr. Lewes to the word *sensation* is the point upon which his system revolves. But we must pass over much that is interesting in order to come to a very important discussion upon the merits of Dr. Marshall Hall's theory of Reflex-action.

It is necessary for Mr. Lewes, in order to carry out his views, to lay down some definite conclusions as to the meaning of such a phrase as "the vital-mechanism," because the Reflex-theory implies the conception of the animal *organism* being to a great extent a *mechanism*, and our ordinary conception of a mechanism carries with it the idea of actions performed unconsciously, without sensation. His notion appears to be that the *adjustment* is *mechanical*, the *guidance* is *sensational*. Sensation is a necessary part of the mechanism—the main-spring of the watch—the fuel of the steam engine.

"An organism is a mechanism, and acts mechanically, inasmuch as its actions are *necessarily determined by the adjustment of its organs*. But the organism differs from the mechanism in being vital, in having sensibility as its main-spring; and its actions, which are called mechanical or automatic, are all *determined by the impulse of guiding sensations*. It further differs from a mechanism in its development of new adjustments and new capabilities."

Mr. Lewes acquits Marshall Hall of any plagiarism from Prochaska—he fully acknowledges his originality, but thinks that Prochaska conceived the whole phenomena with far greater accuracy than was ever attained by Marshall Hall or by Müller. The one fundamental point in the theory which seems to our author totally inadmissible, is the supposition that the reflex-mechanism is independent of sensibility—that reflex-actions take place *without* sensation. He quotes largely from Prochaska, and thinks it clear that in explaining the actions which take place "with-

out consciousness," he did not mean that they took place without *sensation;* but that they were neither determined by, nor followed by, *thought.*

Mr. Lewes refers to Mr. Grainger's share in the development of the reflex-theory with great respect. He says that Mr. Grainger's work on the Spinal Chord is "far more philosophical than anything Marshall Hall ever wrote;" and the present writer may be excused of any attempt to detract from Marshall Hall's genius and ability when he acknowledges to a ready endorsement of such an opinion of the writings of Mr. Grainger, whom he reveres as only a favoured pupil can revere an honoured master.

Nevertheless we think Marshall Hall is not fairly dealt with by Mr. Lewes. His experiments are described as few and loosely conducted; his facts inaccurately stated, or when accurate, illogically interpreted; accuracy of observation and of reasoning were not his strong points; give him due honor for his ingenuity and steady pertinacity against all opposition, but rigidly question the claims even of the most honored; and "a feeling of the ludicrous is irresistible when we hear him declare: '*nothing* can affect my view of the subject, which is, as I have stated, the *simple expression of the facts.*'" Mr. Lewes must surely have overlooked the many statements, similar to this, which are to be found in his own pages.

We have already given sufficient extracts to shew what Mr. Lewes's views of reflex-action are. The spinal chord is a seat of sensation. Every impression upon a sensory nerve excites the sensibility of that segment of the chord with which it is connected, a sensation is produced, and this sensation expends itself in motion. The phenomena manifested in cases of perfect paraplegia are, according to him, no obstacles to the reception of his theory, for he can conceive of the possibility of *having* a sensation without *thinking* of it, and of automatic actions being determined by guiding sensations, although the mind may not be "conscious" of them. In such cases the man is literally as if divided in half—two centres are produced. The lower extremities manifest every indication of sensibility. In the frog they manifest unmistakable volition! The man says, he feels nothing when his limbs are touched. The cerebral segment has attached to it organs of speech and expressive features, by which *its* sensations can be communicated to others; whereas the spinal segment has *no* such means of communicating *its* sensations: but those which it *has,* it *employs.*

Mr. Lewes concludes, then, and thinks that his experiments prove, that the spinal chord is a sensational and volitional centre. With reference to the latter adjective, we must mention that Mr. Lewes does not admit of any distinction between voluntary and involuntary actions; —all actions whatever are the responses of organs to the stimulus of their nerve-centre. Whether the starting point be an idea or a sensation, the final issue is an excitation of the particular centre, and the response of a particular action. All actions are dependent on sensation.

"And if any reader object to such a conclusion on the ground that it makes the soul animate the *whole* body, and preside over all its actions, not simply over a few of them—if he objects that we are thereby retrograding towards the doctrine of Stahl—our reply is: we must follow logic whither logic leads. Any reader who is uncomfortable at the idea of retrograding, who is unwilling to believe that all the phenomena of his sensitive organism have one common source, one kindred nature, and one common name —the soul—is at perfect liberty to try and reach some other conviction which, besides being more agreeable to his feelings, will better explain the facts. It is a topic upon which no man will, wisely, dogmatise. The veil of mystery will never be lifted. We who stand before that veil, and speculate as to what is behind it, can but build systems; we cannot see the truth."

It has never been any part of our intention to enter upon an attempt at a disproof of Mr. Lewes's position: we have fairly stated it, and we leave it to our readers. We may, however, as well state that we are not among those who believe in a "true spinal chord" anatomically distinct from that which has to do with mental actions. We recommend Mr. Lewes's book to our readers, with this proviso; that they examine for themselves the numerous works to which he refers, not contenting themselves with his extracts or his explanations. It is, perhaps, matter of regret that so many of our own countrymen have committed their writings to the pages of Journals, Transactions and Reviews, only; but at the same time the many manuals and treatises which we possess contain epitomes of these scattered papers; and to those who have not a large number of books at command, we can confidently recommend the perusal of the remarks, upon the functions of the spinal chord, to be found upon pages 316 to 341 of vol. I. of Todd and Bowman's Physiological Anatomy.

PART III.

MEDICAL MISCELLANY.

No. 1.—*Cases of Coroner's Inquest.* By Native Surgeon Moodeen Sheriff, Triplicane, Madras.

Of the many cases of Coroner's Inquest that I have had to attend upon as medical jurist, in the 4th district of the Presidency, during the last three years, the two following (Nos. 1 and 2) are, at least, of especial interest; one from its exhibiting a greater amount of degeneration of the heart, than I have ever seen recorded; and the other from its bearing a particular reference to a very doubtful point in Surgery.

No. 1.—*Extensive Disease of the Heart—Sudden Death.*

On the 27th November 1858, I was summoned before a Coroner's Inquest to examine the body, and find out the probable cause of the death of a man, who was found dead in a street. The body was fresh, in good condition, and free from marks of violence.

On opening the abdomen and chest, the heart was found to be enormously enlarged, being about the size of a stomach, and pushed down much into the abdominal cavity. The pericardium was in close adherence with the surrounding tissues, particularly the diaphragm, and it was separated by a Scalpel with much trouble. The right side of the heart was remarkably healthy, the diseased condition being solely confined to the left one, chiefly to the ventricle, the cavity of which was much dilated, while its walls were thickened and hardened, giving a cartilaginous feel to the touch. It was completely distended with a pultaceous brownish yellow substance, about a pound in quantity, and which closely resembled the rice bran mixed with water, upon which fowls are generally fed in this country.

On removing this substance, an extensive ossification came into view, and there were two triangular processes, about two inches in length, projecting into the cavity from the edge of the auriculo-ventricular opening. They were probably the mitral valves, so altered from degeneration. The auriculo-ventricular, and aortic openings were ossified, but not much narrowed in their calibre. The walls of the left auricle were also thickened, but not ossified.

With regard to the previous history of the case, all that I could learn was, that the man had been subject to "fits" for many years, and that on the previous evening while walking along the street, where his body was laid, fell down suddenly and died. The character of the fits, according to the statements of his friends, were more like those of fainting, and probably arose from the interruption of circulation of blood in the heart. At the advice of Dr. Urquhart, the Coroner, I reserved the heart, and sent it to the College Museum through Dr. Porteous.

It was easy in this case to account for the death, and attribute its cause to the diseased condition of the heart, but I am quite surprised how the man could have lived at all, so long. The ventricle was so distended with the foreign substance, that there was scarcely any space left for the entrance of blood into the cavity, except, a small narrow one, just in front of the auriculo-ventricular opening, extending upward, towards the commencement of the aorta, and even this not being quite free from the pultaceous substance; in all probability, it could not have admitted of more than a drachm of the fluid. Although we cannot explain physiologically how this small quantity of blood could have maintained the life, in a manner so as to allow the deceased to walk about and carry on his usual work, there are cases on record, where the chance of circulation of blood through the heart was still more limited, yet the patients continued to exist. Dr. Watson in describing ossification with its results, of the mitral valves and auriculo-ventricular opening, states thus—"The orifice is often converted into an unvarying oval slit, with puckered edges, and resembling a button hole, or the valve projects like a thimble of bone into the left ventricle. And it is remarkable how small the chink, which is thus permanent, may be, and yet life go on. The heart having been taken out of the body, and the auricle filled with water, I have seen the water pass into the ventricle by its gravity, *stillatim*, drop by drop." Now, even admitting that a drachm of blood was enough to support the life, there is another and still greater difficulty in this case to explain, how the fluid was propelled into the aorta from the ventricle, the latter being not only distended with a foreign substance, but was also thickened and hardened to such an extent, that it could not have contracted at all.

The above facts are although beyond our present knowledge of physiology to explain satisfactorily, yet it is of

great moment, I presume, to be acquainted with their occasional existence, in point of practice.

No. 2.—*Injury of Chest—Fracture of Ribs, and Perforation of Right Lung—Emphysema of the Trunk—Death.*

This case occurred on the 1st of January 1859, and it was that of a boy about 5 years of age, "Chinnian," who died from an injury to the lungs, from the wheel of a bandy passing over his chest. The accident having occurred in a place not far from the Triplicane Dispensary, the child was immediately brought to that Institution, and admitted under Dr. Porteous' care. On admission the child was restless, rolling about from side to side, and suffering from great dyspnœa. The existence of fracture of some of the ribs at or about their angles on the right side was indicated by emphysema, and crepitus on motion. The emphysema was only partial on admission, but within a minute or two afterwards it extended rapidly all over the trunk, including the neck and face,—and in fact, in a very short time, the little patient was puffed up in a very remarkable manner. As mere pressure would not have been of any avail in this case, an incision (counter-opening) was made on the right side, as near as possible to the fracture of ribs, through which the air that had accumulated into the cellular tissue, escaped with force on pressing over the body with the hands. The emphysema having been thus relieved, its further collection was prevented by applying a tight bandage around the chest, and by leaving the opening free for the escape of air and blood. The air, accordingly, continued to escape through the opening forcibly and with a kind of whistling noise, *during the act of inspiration.* The child although somewhat relieved at the time, gradually sank and died in the evening, when the Coroner's Inquest was held over him. On dissection I found that the 5th and 6th ribs on the right side were fractured about their angles, and penetrated the lungs in two places. There was a distinct communication between the pulmonic wound and fractures, and between the latter and external opening.

This is a very instructive case, inasmuch as it afforded me a chance to judge for myself, on a very doubtful point in Surgery. I allude to the subject of emphysema over the trunk as a result of fracture of ribs, it not being decided by many authors, which of the acts of respiration it is that contributes to expel the air through the pulmonic wound. Most of the writers do not say distinctly, whether the

escape of air takes place during expiration, or inspiration, or both; but they speak in a manner, which would lead one to suppose that they allow that the escape may occur during either, or both, of these acts. Some are still more reserved in giving their opinion, and only state that contraction of the chest in respiration is necessary to expel the air into cellular tissue so as to produce emphysema. Messrs. Furgusson and Druitt are the only two authors, as far as I am aware, who are decisive in their expression on this point. The former says—"The air at first escapes into the cavity of the chest, in all probability, during expiration; then, as it accumulates, gets through the fissures in the pleura costalis; and makes its way between the fragments into the cellular texture around, from whence it spreads in all directions under the skin so long as it continues to escape from the lung:" and the latter lays down thus—"In the act of inspiration air escapes from the lungs into the cavity of the pleura, and from thence through the wound in the pleura costalis, into the cellular tissue of the trunk." The last statement is, however, what exactly corresponds with the facts of the above case, and I have little doubt, therefore, that it is the act of inspiration that contributes to the production of emphysema. I took particular notice of these facts at the time of their occurrence, and even held my finger over the external opening, but there was no air felt to escape at all during expiration; whereas, during inspiration, as I said before, the air was expelled forcibly with a kind of whistling noise.

No. 2.—*Iodide of Potassium in Fungus Testis. Three Cases successfully treated.* By J. W. Mudge, Esq., M.D., Surgeon, 2nd District, Presidency.

Ramasawmy, Æt. 28—Admitted on the 8th June, 1861, with a large fungus of the right testicle; stated that he had been previously operated on in another hospital; the scrotum having been brought over the fungous growth, and that he left the hospital apparently well. About 3 months afterwards the fungus again protruded.

℞. Potass. Iodid. gr. v.
Aquæ. ʒ i. M. ter die.
℞. Tinct. Iodin. ℥. i.
Aquæ. ʒ i. M.
Ft. Lotio.

To be applied on charpie to the part.

5th July.—Discharged cured.

Putchay Mootoo, Æt. 55.

11th July, 1861.—Admitted with a fungus of the right testicle.

℞. Potass. Iodid. gr. v.
Infus. Chirettæ. ʒ i. M. ter die.

12th August.—Omit medicine.

18th.—Discharged cured.

Yagambrum, Æt. 26.—An out-patient with fungus testis; admitted 26th September 1861.

℞. Potass. Iodid. gr. iv.
Decoct. Sarzæ. ʒ ii. M. ter die.
℞. Tinct. Iodin. ʒ i.
Aquæ. ʒ i. M.
Ft. Lotio.

6th October.—Discharged cured.

The above cases offer a good illustration of the effects of Iodine in fungous disease of the testicle, and are published with special reference to the case of Andyappen, related by Dr. van-Someren in No. IV. of this Journal. Fungus testis being essentially a scrofulous affection, there is nothing remarkable in its yielding to the influence of Iodine, and I believe with common caution and judgment, there is no fear of the lamentable consequences, the *reductio ad nil*, alluded to. With regard to shaving off the protruding fungus which has been recommended, Druitt says, "to shave off the protruding substance would be almost equal to castration."

No. 3.—*Another Case of Fungus Testis, successfully treated with the Iodide of Potassium.* By W. J. van-Someren, Esq., M.D., Surgeon, 1st District, Presidency.

On the 8th October 1861, Lutchmiah, aged 26, was admitted into the Native Infirmary with fungus of the left testicle. He stated that ten months previously the gland became painful and swollen. Suppuration followed, and the abscess burst, but through the solution of continuity thus established, a fleshy excrescence protruded, and had for six months been increasing to its then dimensions, which are described in the hospital Journal as those of "a hen's egg." He tried to destroy the out-growth with several kinds of escharotics, but without avail, and on admission it was encrusted thick-

ly with sulphate of copper. His general health was little impaired, bowels open, and appetite good. After an aperient draught, the Iodide of Potassium was prescribed for him in five grain doses thrice daily, and an emollient cataplasm as a local application. Under this treatment the fungus reduced day by day, nor was any change made in the treatment other than the substitution of water dressing for the poultice, when the surface of the excrescence had become clean. On the 9th November the journal states—"only a small spot about the size of a pea keeps open," and on the 16th of that month he left the hospital.

Unlike the case of Andyappen, reported in the Fourth Number of this Journal, that of Lutchmiah was treated throughout with the Iodide of Potassium only, and this drug must consequently be credited with all the improvement actually effected by medicine. That the "rest, comfort, and good diet" of the hospital also had their share in ameliorating the general health of the patient, and his topical malady too, cannot be questioned, but their beneficial operation was probably only ascillary to that of the medicament employed. The continued use of the salt for more than five weeks was not attended with any atrophy of the testicles—an asserted effect of the drug which may be regarded as very rare and exceptional, if not actually *mythical.**

In further evidence of the utility of Iodide of Potassium in cases of fungus testis, reference may be made to other cases reported in the present Number. In the writer's former communication on this subject, allusion was made to a patient successfully operated on in the manner recommended by Mr. Syme. That patient after leaving the Infirmary well, probably had a second burst of inflammation of the testicles, which ran the same course, and resulted in the formation of a fungus, for the treatment of which he repaired to the Vepery Dispensary, and there recovered under Dr. Mudge's care. In this case also the same medicinal treatment was pursued with success, dispensing with the necessity of operative interference.

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* In corroboration of this statement we may allude to the case of a military man, formerly holding a high appointment on the staff of this Presidency, who, when taking the Iodide of Potassium in drachm doses for the cure of asthma, so far from undergoing an atrophy of the testicles, was alarmed to find these glands enlarging considerably—an effect which disappeared after the discontinuance of the drug, but was not followed by subsequent reduction of the organs below their normal size.

Besides Mr. Blacklock's favorable testimony to the power of Iodide of Potassium in promoting absorption of those interstitial deposits which constitute the bulk of every *fungus testis*, and thus removing such excrescences, we have now recorded five cases, illustrating the same energetic action of the drug, treated by two other medical men added. Experience enables us therefore to write in more hopeful and encouraging terms of the medical treatment of such cases than we were disposed to do last April, and we may venture to assert that Mr. Syme's operation should rarely, if ever, be resorted to without a previous trial of the salt in question as a deobstruent.

So well known as the therapeutic effects of the drug are in Great Britain, we cannot believe that it has not been sufficiently tried there in the cases under consideration. And if tried, has it been found wanting? Is it possible that the Hindoo constitution is more amenable to the therapeutic action of the salt than the English or the Scotch? The question is an interesting one, and will, we hope, be investigated both at home and out here, and settled in the metropolitan Medical Journals as well as those in this country.

No. 4.—*Rheumatismus Acutus. Injurious Effects of Alkaline treatment.* By J. W. MUDGE, Esq., M.D., Surgeon, 2nd District, Presidency.

ARMOGAM, Æt. 14, officer's servant, Pariah.

The Bicarbonate of Potassa being a medicine largely used in rheumatism, and exceedingly valuable as a remedy in that very painful disease, it may not be uninteresting to relate a case in which its effects were of a very unexpected and unusual character, apparently acting on the fibrine of the blood, and leading to profuse discharges of that vital fluid from all the mucous surfaces.

The patient was admitted on the 29th July, 1861, with fever and rheumatism, affecting all the large joints. He had also a large eschar on the inner surface of the right knee, equal in size to the palm of the hand. He stated that this was caused by some liquid rubbed over the part with a feather. It gave him great pain at the time of application,

and appears to have been nitric acid. He took on admission Pulv. Jalap. Co. ℈ ii. which acted well. Afterwards—

Potass. Acetat. gr. xv.
Vin. Colchici. gtt. x.
Tinct. Hyoscyami.
Spirit Æther Nitric, an gtt. xv.
Aquæ. ʒ iss. M.
Ft. Haust—ter die sumend.

August 1*st.*—Since last night has been suffering much; respiration hurried; heart's action much accelerated, and there is pain in the cardiac region, with increased dulness and intolerance of percussion.

Omit Mist.
℞ Calomel gr. ii.
Ant. Pot. Tart. gr. 1-6th.
Opii. gr. ½ M.
Ft. Pil i. ter die.

℞ Emplast Vesicat Reg. Card. and Flannel bandages to the limbs.

2*nd.*—Blister rose well. Cont. Med.

3*rd.*—Somewhat relieved. Heart's action decidedly less.

℞ Calomel gr. ½, Ant. Pot. Tart. gr. 1-6th.
Opii. gr. 1-3rd, Pil. i. ter die.

4*th.*—Cont. Med.—Bowels not moved.

℞. Pulv. Rhei. Co. ʒ i.

5*th.*—Cardiac symptoms have subsided. He has now chiefly pain in the right wrist and left knee; he suffers also much pain from the separation and sloughing of the nitric acid escar.

Omit Pil.
℞ Pot. Bicarb. ℈ ii.
Spirit Æther Nitric gtt. x.
Aquæ. ℥ ii. M.
Haust ter die.

8*th.*—Improving; walks about the ward, still complaining of wrist, and now of right shoulder.

℞ Potass. Bicarb. ʒ i. &c. ter die,

10*th.*—Is now nearly free from pain; urine copious.

Cont. Med.

12*th.*—Had an attack of fever on the night of the 10th, and yesterday morning much oozing of blood was noticed from the surface of the eschar; he also passed blood by stool and urine and spat some from the mouth; appears entirely free from rheumatic pain. Pulse natural, appetite good.

The oozing from the sore was not controlled by a strong solution of alum, nor by matico, but was at length checked by the Tincture of Iron.

Omit Pot. Bicarb.

℞ Tinct. Ferri. Sesquichlorid. ♏ xx.
Infus. Quassiæ ʒ i. M. ter die.

13*th.*—Still passing much blood by stool and urine, and sore flabby and oozing; pulse quickened; complains of abdominal pain.

℞ Tinct. Ferri. Sesquichlorid. 3 ss.
Infus. Quassiæ ℥ i. M. ter die.
℞ Acid Hydrochloric 3 ss.
Syrup. Simplex. 3 v.
Aquæ 3 xx. M.

For drink—

℞ Potassæ Chlorat. gr. x.
Aquæ. ʒ i. M.

Ft. Lotio.

To be applied on charpie to the sore on the knee, and a charcoal poultice over it.

14*th.*—Somewhat better, but passing blood in considerable quantity both by stool and urine; pulse 120.

℞ Ol. Terebinthinæ 3 ss.
Syrup. Simp. 3 ii.
Muc. G. Acac.
Aquæ. Cinnamomi. aa ʒ ss. M. ter die.
Cont. Tinct. Ferri. &c. bis die.

15*th.*—Decidedly better; less blood passed; stools formed and feculent; pulse 114.

Pergat.

18*th.*—No more blood passed from bowels or kidneys.

Omit Ol. Terebinthinæ.

Cont. Alia.

22*nd.*—Has been progressing steadily; appetite good; alvine secretions healthy; urine clear and straw-colored; sore on the knee granulating in a healthy florid form. There is, however, swelling and pain of right wrist joint and a little in the left elbow.

Omit. Tinct. Ferri. &c.

℞. Pot. Iodid. gr. iii.
Infus. Gentian ℥ i. ter die.
℞. Sol. Iodin. fort.

To be painted over wrist and elbow.

30*th.*—He continued to take the Iodide till this morning.

All rheumatic pains have ceased except a slight uneasiness in the left elbow without swelling. The sore on the knee is granulating slowly.

Omit Iodid. Pot.
Cont. Lotio Pot. Chlorat.

September 6th.—Is doing well; appetite good; functions natural; sore on knee not yet healed.

Pt.

11*th.*—Is now well, with the exception of the sore on the knee, which is however almost healed; as his friends are going to Vellore he is anxious to go with them.

Discharged.

Headland says (Action of Medicines), page 142, "Alkalies likewise dissolve organic compounds of the albuminous group, and prevent the coagulation of fibrine. In excess they retard nutrition, and cause spareness of system. In surgical cases, and in aneurisms, where we wish to promote repair of injuries, or to cause a deposit of fibrine, they will do harm. They antagonize inflammations in which they are used on the catalytic principle."

The case now detailed appears to verify these remarks, and also to show the inapplicability of this salt to the treatment of scurvy as recommended by Dr. Garrod in his "Essentials of Materia Medica."

The benefit of "*Turpentine*" in arresting the discharges of blood from the mucous surfaces was strikingly apparent in this case. I have recently been led to try this medicine in Asiatic Cholera. As yet only a few opportunities have offered, but they have all been successful.

No. 5.—*Further Remarks on Uræmia in Cholera, with a Case illustrating the benefit of Local Depletion.* By Assistant Surgeon C. Lee, H. M. S. "Coromandel," I. N.

In the third volume of this *Journal* a very important suggestion is given by Surgeon Ratton regarding the treatment of uræmia in cholera. In the present most ambiguous state of our knowledge of this dreadful disease, the different ways in which its attacks are brought to our notice, cases of recovery, with the treatment employed, are most valuable; and acting upon the suggestion, I determined upon giving the first favourable case of cholera the benefit of local deple-

tion, and fortunately this mode of treatment resulted in the recovery of the patient. I had not long to wait after the arrival of the "Coromandel" at Calcutta, when one of the stokers was seized with cholera. I now forward the case with the treatment pursued, not with the view of making any new suggestions, but to add my small quota to those cases already published, and as opportunities offer, shall continue to adopt the same plan which I have found so successful in the present instance. I must premise that the weather for some two or three days previous to this man's illness had been close and oppressive in the extreme, though the thermometer did not note above 85°, and heavy clouds rolling down from the North-east foretold some atmospheric change, as was afterwards proved by a cold North-easterly wind setting in, lowering the temperature to 72°, and accompanied with drizzling rain. With this digression I proceed to the detail of this case.

Joseph Mingail, Æt. 18, a healthy looking Malay lad, of leucophlegmatic temperament, was admitted on the 5th November 1861. Says he was first taken ill yesterday, but did not come to me for medicine till 2 P. M. this day, when he complained of great weakness, and had been purged more times than he could count, and has vomited once. Feels cold, but the temperature of the surface of the body is warm, not moist. Pulse about 100, weak, and rather small; tongue pretty clean, pale and moist; eyes a little sunk; has passed no urine since 4 A. M; is unable to account for his illness, as he has eaten nothing the last 24 hours.

To take a Paterson's Pill.
After each stool, with
Brandy ℥ ss every hour.

6. P. M.—Has vomited three times and been purged twice. Vomit clear, stool rice-coloured and watery, cramps in abdomen and calves of the legs commencing. Great restlessness; pulse quick, small, and feeble.

R. Ether Chloric, ♏ xxv.
Brandy, ℥ ss.
Water, ℥ ss. M.
To be taken every hour.
Apply 10 leeches to each loin.

Sinapisms to the stomach and lower extremities as long as they can be borne.

Hot bottles to abdomen.

7-30 P. M.—The sinapisms have acted well and given him

relief, vomiting not so frequent, but still persists. Has kept some of the pills down, but others were rejected; purged once, stool scanty and of the same character; leeches beginning to drop off after drawing freely; is very restless and rather noisy since the application of the sinapisms. Tongue cold and moist; pulse more distinct but very quick; no moisture on skin, no urine.

Continue Mixture.

8 P. M.—Vomited just now after the last dose of Chloric Ether, and attempted to evacuate, but passed nothing. Head feels very light; skin warm; pulse about 120, small; no urine; leech bites bleeding freely.

Continue Mixture and Pill.

8-30 P. M.—Since last report he has taken some conjee and brandy, but brought it up; some plain conjee was tried and retained, but after taking the pill at 8 o'clock, he brought up a large quantity of clear watery fluid. In other respects remains much the same.

Omit Pill.

But continue

Brandy ʒ i. for each dose every 2nd hour.

Thin arrowroot occasionally.

10-30 P. M.—Has taken one dose of brandy and been much quieter than before, but though less restless, he cannot sleep; leech bites continue bleeding; has taken some thin conjee and kept it down. Refrained from giving the brandy lest it should irritate the stomach, but ordered it to be given at 12 o'clock.

11-30 P. M.—Vomited twice since last report, and brought up his conjee, otherwise the same.

Continue same.

6th November, 5 A. M.—No sleep the last four hours; is now crying with pain and cramps in lower extremities.

Gave Paterson's Pill No. 1.

With a draught of Chloric Ether as before, but it was rejected. Pulse perceptible, but very small and weak.

℞. Sp. Ammon. Arom. ʒ ss.

Water ʒ iiss. M.

St. sumend.

6-30 A. M.—No change since last seeing him; the above draught was taken and kept down; no urine; says he requires food.

Continue Conjee and

Give another pill at once.

7-30 A. M.—Has kept the arrow-root down and also the pill, and is now composed ; no urine.

8 A. M.—No change; has passed no urine for 28 hours; stomach still irritable ; has been purged once, stool of the usual rice-water character.

To have 10 Leeches to each loin, and add
Tinc. Cantharid. ℥ v.
To each dose of Chloric Ether Mixture.

9 A. M.—The leeches not drawing well, I cup him over the loins to 10 ounces; for the last hour there has been no vomiting or purging.

℞. Brandy ℥ ss.
every 2nd hour.
℞. Ether Chloric ℥ xv.
Tinct. Cantharid. ℥ v.
Aquæ ℥ iss. M.
to be taken every 2nd hour alternately with the brandy.

1 P. M.—Has now passed about 4 oz. of urine; bowels not moved since 8 o'clock, still calls for food.

Continue arrow-root in small quantities frequently.

4 P. M.—The brandy appears to disagree with him, even Ether in all its forms, immediately after being taken is rejected ; the plain conjee is retained.

℞ Tinct. Cantharid. ℥ x.
Every 2nd hour in water.

7 P. M.—Has passed about 8 oz. of urine, and also a semi-fluid feculent stool ; pulse much improved in character, and he is now lying quiet.

Omit all Stimulants.
℞ Hydrarg. Chlorid. gr. v.
Pulv. Doveri. grs. vii.
Quinæ. Disulp. grs. iii. M.
Ft. Pulv.
To be taken at 8 o'clock.
Continue arrow-root as required.

7*th*.—6 A. M.—Has had three feculent stools during the night, no return of vomiting. Dosed a little at intervals, but there is a marked general improvement in him; pulse firm and good.

From this time he gradually convalesced, and after taking a tonic for a few days, was sent to his work quite well.

This case I have deemed worthy of record, as it shews fully the great benefit to be derived from local depletion

with the view to removing the congested state of the kidneys and consequent uræmia. Four hours after he was cupped urine was secreted and passed in moderate quantity, and in the evening freely.

Calcutta, *November* 22*nd*, 1861.

No. 6.—*Case of Epithelial Cancer of the Penis. Amputation—Recovery.* By Assistant Surgeon W. Arnold Smith, M.D., 16th Regt. M. N. I.

Anamah, villager, Hurryhur, a tall spare man, aged 40, came to my hospital September 21, with an extensive fungoid, cancerous looking ulceration of the penis. The organ was much enlarged, and the ulceration extended, to within three quarters of an inch of the pubes. With the exception of a narrow strip of skin on the dorsum, the disease entirely encircled the organ. The prepuce had quite disappeared, and the ulceration, which was characterized by fungating, hard, elevated edges, had eaten down into the substance of the organ.

A sero-purulent discharge oozed away from the whole surface, and the small portion of skin left on the dorsum, looked hard and glazed. The urethra remained intact. The glands in each groin were much enlarged and painful. The patient did not complain of much pain, but his countenance was anxious; appetite pretty good; slept well.

History.—Stated that he was a gold worker by trade. That 20 years ago he had a gonorrhœa, which was never properly cured. Had always been subject to phymosis. A discharge continued from the prepuce, attended with great itching, till about a year ago, when an ulcer began to appear on the outside, which gradually enlarged.

Three months ago the ulceration began to extend much more rapidly, till the greater part of the organ became involved; never had syphilis, was married, and had a son 13 years old.

Had been under native treatment for some time past.

Treatment.—*September* 23*rd.*—The patient was put under the influence of chloroform, and the entire organ was amputated in the usual manner, close to the pubes. He remained in hospital about three weeks, during which time the glands in the groin assumed their natural size; the patient's health improved; and he was discharged cured.

Microscopic Appearance of Diseased Tissue.—The diseased part when cut into was of a hard yellowish looking texture, slightly friable in some parts, and exuded a thin serous fluid from the surface. This fluid under the microscope exhibited oil globules, mixed with cells of various shapes and sizes, nucleated and granular. Thin slices of the diseased tissue appeared to be composed of interlacing fibres, mixed with cells similar to the above.

Remarks.—The above case is one showing the deplorable results arising from neglected disease. The patient's history, as given by himself, is rather obscure, but I believe that the case was originally nothing more than simple balanitis, consequent upon congenital phymosis. From the frightful ravages the ulceration had made, together with the enlarged state of the glands in the groin, I was very doubtful as to whether amputation would prevent the return of the disease. This was explained to the patient, who wisely preferred to stand the chance of the operation, seeing that he could not be worse than he then was. The result has shown that there is always hope in these cases, as long as there is sufficient tissue clear of the disease, to enable a clean stump to be obtained.

The only difficulty which occurred in the after-treatment, arose from the retraction of the urethra, thereby rendering the orifice liable to be closed in the cicatrization of the wound.

This was prevented by the retention of a bougie in the canal, but this would not have been required, had I, at the time of the operation, *stitched the mucous lining of the urethra to the skin of the penis*, a practical point in this operation, which should never be neglected.

HURRYHUR, *November 30th*, 1861.

No. 7.—*The Bark District of Huanuco.*

LETTER FROM G. J. PRITCHETT, ESQ., TO THE UNDER-SECRETARY OF STATE FOR INDIA.

Boxmoor, Herts, July 9th, 1861.

MY LORD,

THE particulars of the circumstances causing the delay of my Report on the Bark District of Huanuco which I visited last year, for the purpose of collecting certain species of the

plants and seeds of cinchona peculiar to it, are already before you.

I have now the honour to submit, for your information, the following details :—

Having obtained letters of introduction in Lima, and made what preparations were needful in that city, in the way of waterproof tent for the forest, as well as warm clothing for passing the Cordillera of the Andes, I took my departure from that city on the 18th May, leaving there a letter to be forwarded to Mr. Markham, intimating my having done so.

The city of Huanuco was reached on the 28th, a distance of eighty leagues. It is situated on the eastern slope of the Andes.

This being the last point for procuring mules, as well as preparing provisions, it was necessary to remain here some days to carry out these objects. In the meanwhile, I was engaged in procuring as much local information as possible, in connexion with my object.

A very short time proved how interested the community of Huanuco are in the products of the neighbouring forests. I was welcomed by the governor of the place, and everything that would in any way contribute to success was placed at my disposal. Through the kindness of several of the residents, I was enabled to obtain the services of a Bolivian, who had in former years been engaged in getting out bark, to a considerable extent, and was well acquainted with the several most interesting spots in the forest for that purpose.

The time of my arrival in Huanuco was unusually favourable for gaining information on every point that might be necessary, and ready and eager replies were given to my inquiries, in consequence of the expectations of the inhabitants being at the highest respecting the future prosperity of their city, on account of a grand road, which was already commenced, for connecting the province of Huanuco with the river Ucayali (about fifty leagues to the east), the largest and most important of the southern tributaries of the Amazon.

Arriving at this time, with introductions from members of the Government in Lima, and not having anything to do with the usual objects that take people to Huanuco, it was impossible that the popular mind could allow me to pass unnoticed. To me, therefore, was assigned the post of emis-

sary from the Government for ascertaining the most suitable point on the Ucayali which should be made the terminus of the road, with the view of connexion with the Amazon by large steamers on the former river.

Provisions of dried meat, biscuit, lard, rice, tea and coffee, sugar, spirits, tin teapot and mug (the spirits being the most important of all in the damp forest) being ready, I left the city of Huanuco for the forest on the 9th June, having been delayed there twelve days by these indispensable preliminaries.

The route to the bark district (I should say to the centre of the district, as it extends from north to south over a distance of at least from forty to forty-five leagues) lies to the eastward, the first part of the road, for about five leagues, being down the valley of Huanuco, and more or less along the river's bank. Sugar-cane estates occupy the land on either side, whose products supply the mineral district of the Cerro de Pasco with large quantities of the aguardiente —the rum of the country, and is a source of extensive support and profit to the inhabitants. The whole of the cultivation is by irrigating canals from the river, a system most thoroughly understood by all the Indian population of South America.

Leaving the valley of Huanuco, the road strikes off to the left, in a northerly direction, gradually ascending from the river, in the direction of the highest part of the chain of mountains, at the top of which is Carpis, and at a distance of about two leagues is the village of Acomayo. This is the halting place generally adopted by travellers leaving Huanuco, on account of eggs and alfalfa being both obtainable here, and the necessity for giving a good rest to the mules before attempting the pass of the mountain. It was my fate to both ascend and descend this mountain on foot, on account of the unusually unfavourable state of the road at the time of my entering the forest.

The great mountain range of Carpis may be considered the outpost of this part of the forest. On one side, from its towering elevation, you look over the boundless sea of forest vegetation to the eastward: on the other, in the direction of the Cordillera and Huanuco, the prospect consists of every form of bare rock and arid mountain, except in those few instances where the bed of a valley is visible, and the green patches of irrigation can be distinguished.

On the forest side, the vapour and cloud which rise are

continually bathing the woods, which seem at this spot to be the perpetual focus for the converging clouds. They are carried over the tops of the range towards the more heated plains of Acomayo, and bear with them in that direction, for a short distance, their beneficial and nutritive influence, though it does not extend above a league or a league and a half.

The atmospheric changes which rapidly take place at this point are very great, every vicissitude of temperature being experienced here within a few hours. At one time, a raging tempest of rain and wind; at another, the calm, tranquil, leaden atmosphere of chilling cloud and fog. I presume the almost fathomless depths of the water-worn abysses of the forest, the great proximity of their sides to each other, at the same time that they are under the influence of a tropical sun, will account for these phenomena.

Carpis contains many specimens of trees of the cinchona species; among them the *C. Purpurea* immediately arrests attention, on account of the distinctive character of its foliage; it is very abundant here, as well as in other parts of the forest which I visited. I presume it made more impression on me here, as I saw it for the first time.

C. Nitida is common on the north-east side, and at the upper part of the mountain.

C. Obovata, the source of the olive-leafed, but known as the *lucumo*-leafed species, is met with in small quantities, but with characteristics so decided that I could have no doubt of its being the species so called. It required several days' examination before it could be discovered, and I had almost despaired of finding it, when the last day brought success.

C. Micrantha, var. Provinciana and *var. Pata de Gallinazo*, are both inhabitants of the lower levels of the mountain. Other species were met with, which may be valuable, but as my object was confined to those above named, and my time was exceedingly limited, it was urgent for me to make the most of the short remaining season, and dedicate the whole of my energies to carrying it out in the most effective manner possible.

I lost the opportunity of seeing an important distinctive character of the cinchonas by arriving on the ground too late to see the trees in flower, so I was obliged to be guided by other peculiarities, in which I trust I have been successful.

The nature of the ground, the dense and lavish character

of the vegetation, which is exuberant beyond expression, have hitherto effectually kept this region in a perfect state of seclusion, and almost entirely unknown, except to the few natives who, in naked loneliness, have been urged by hunger to thread their way through the brakes and sloughs of its rank wastes, when escaping from the thrall of some oppressive estate owner, or pursuing the chase of some wild animal for food to support the exertion necessary for threading the difficult mazes of the entangled woods.

Chinchao is the first village met with in descending the valley of the river of Casapi, of which Carpis is the head. It gives its name to a cinchona district in the neighbourhood, on both sides of the valley, from which specimens of cinchona have been brought, and sometimes also applies to the chain of lofty hills or mountains on the left bank, which connects the crest of Carpis with the important bark mountain of Cayumba, within a league or so of the river Huallaga, to which the river of Huanuco is tributary.

On this chain of hills the same species of cinchona are met with: in the upper parts, the *Nitida* and *Obovata*, and in the lower, the *Purpurea* and *Micrantha*.

Chinchao is the only village of this valley, consisting of about twenty huts and a church.

The coca hacienda of Casapi was reached on the 13th June, having passed on the way down the valley, the different coffee and coca haciendas for the cultivation of those products.

Casapi.—This hacienda is an extensively cleared portion of the forest for the cultivation of the coca shrub, whose leaves are greatly appreciated among the labourers of the country as a stimulant of a peculiarly supporting character, many nights and days of laborious watching and exertion being undergone by the assistance of its strange properties.

To the miner it is considered indispensable, and the important mineral district of Pasco, which contains many thousand inhabitants, would be a desert were it not for the strange energy imparted to the miner by the use of the leaf of this invaluable shrub.

It is masticated, with the addition of a small quantity of caustic lime, which is carefully introduced to the chewed mass at the end of a small stick. "Hualqui" is the name of the hide bag containing the coca leaves, and "poto" that of the small *maté* containing the lime.

Casapi is situated at the lower or eastern end of the val-

ley, where it joins the main valley of the river Huallaga. This was the first scene of continuous exploration. It was here that I was joined by my guide, who did not join me for ten days after my arrival.

In the meantime, I proceeded to make use of all the means at my disposal, by availing myself of the people of the hacienda to show me the tracks and intricacies of the neighbouring woods, all which was most kindly permitted by the owner of the establishment, who is the son of the gentleman who entertained Dr. Pœpig when he visited these parts. With this assistance, I was enabled to examine the whole of these woods before the arrival of Juan, my guide. The result of the exploration proved how active had been the operations of the collectors in the time of former bark speculations; for, with but rare exceptions, every tree had been felled, and nothing was left to subsequent collectors but to wait till the younger plants should come to their full maturity.

It was evident that this was not the spot for my purpose.

Casapillo is situated on the high land which is formed by the junction at an acute angle of the Casapi valley with that of the Huallaga. Its height above the woods of Casapi is between 400 and 500 feet.

The only species found here was the *C. Nitida*, whose only habitat is airy situations; but, as in the case of Casapi, it had been visited by the collectors, and every cinchona tree had been felled; the spot was soon abandoned for search in others of better promise.

The extent of this wood, which is on a high spur of land which comes from the range of hills in the direction of Pillao, is several square leagues.

Cocheros.—The mountain called San Cristoval de Cocheros is situated at about three leagues from Casapi, close to the Huallaga. The owner of these haciendas told me that it had never been visited by collectors, and that I could prosecute my search in its woods as much as I pleased. It rises, an isolated mountain, from the low land at the conflux of the two rivers, to a height of about 1,200 feet above them. This point is about the centre of the bark district of Huanuco.

It has on the north, or lower down the Huallaga, within a 15-league radius, the following bark producing stations,—Chicoplaya, San Antonio, Tingomaria, Huachipa, Cayumba, Patayrondas, besides others on the Monzon River. On the

south, in the direction of Panao, Pampayaco, Lanzabamba, Jaupe, Mallgo, Iguacará, and Pillao.

On the arrival of Juan (my bark guide), I immediately set to work to determine the capacity of our new scene of labour for producing cinchona seed, and daily were the trips made into its woods for that purpose. But it was soon clear that, however much was met with and seemed merely to require a few days to ripen, nothing could be done for the present, as the capsules were only recently formed.

During this pause, which was unavoidable, it seemed desirable to have other woods, known to contain the *Nitida* and *Micrantha* species, examined at the same time, to ascertain the state of the seed there, which, if more forward, could have been harvested before the Cocheros seed was ready. None, however, was found to possess the advantages of this spot for my purposes. I therefore determined to make the entire collection of seeds and plants from this point, and commenced at once to fix on the trees in the most forward state, so as to watch the gradual maturing of the seeds, both of the *Nitida* and *Micrantha*. It seemed as if a few days would be sufficient for the purpose, yet several weeks elapsed before the first lot of seed was gathered.

The governor of Tingomaria sent me several specimens of barks from his neighbourhood, and offered me access to the woods of his district, but the swollen state of the river, which had for a long time prevented any communication from below, and having the species I required so near at hand, made me thank him for his kindness without availing myself of it.

He sent several specimens which proved to be of the *Micrantha*, and other species found in Cocheros.

From the reports brought me by people engaged by me in the search for the *Nitidas* and *Micranthas* as well as the *C. Obovata* in the mountains of Pillao, I have no doubt that this district to the south of Cocheros, with the intermediate points enumerated above, would yield a prodigious quantity of these barks, should the time ever arrive of its attaining a commercial value.

Huachipa was reported to me, by an old Spaniard and formerly a collector, as containing the *C. Obovata*. We searched there for it, however, without success.

The first examination of Cocheros gave very little promise of good. I commenced at the east corner of the mountain, on the lower side next the river, and gradually

rose along the south-east face, in a zigzag direction till the summit was reached. Here an abundance of *C. Nitida* trees was met with, having a fair quantity of seed, though in the early part of the ascent I was greatly disappointed at meeting with only few, but very fine, specimens of the *Nitida* and *Micrantha* species. I was somewhat reconciled, however, with the reflection that it was probable the sunny side of the mountain would prove more favourable to the cinchonas, more particularly those requiring warmth and moisture, and I looked forward to the morrow to try the correctness of the surmise. Early next day, our course (the starting point being the same as yesterday) was directed due north, parallel with the line of the river, and having ascended sufficiently high to be well in with the *Micranthas*, which already showed greater development than on the south-east side, we continued in a horizontal direction along this face of the mountain, meeting with a most satisfactory show of the *var. Provinciana.* We marked the trees as we entered, by way of precaution, so as to arrive at the same spot on a subsequent visit, which had to be repeated a great many times before felling the trees for gathering the seed.

The *var. Pata de Gallinazo* is scarce on this mountain, as well as on every other we visited, compared with the *var. Provinciana.* They both grow to very large size, and the foliage is somewhat similar, but they are easily distinguished by the bark.

Some of this species I found to be as large as 30 inches diameter, and a noble and elegant appearance many of them have among their brethren of the forests, rising in some instances as high as 70 feet.

Our day's work confirmed me in the determination to take this point as a fair specimen of the district. The supply of trees and seeds being so ample, and the field of exploration being so comparatively near to the coca hacienda before named, made this spot suitable also for the drying process, so very needful for the delivery of the seed in good condition on the coast.

Being entirely satisfied as to the existence of the seeds at this point, I now only felt great anxiety about the weather. Although it was then about the middle of the dry season, heavy soaking rains were still falling from day to day, and the seed seemed to make no progress whatever towards maturity.

Towards the latter part of July the weather broke up, and the sun began to make impression on the solid banks of clouds that filled the valleys. Though clouds were the prevalent visitants during this so-called dry season, there were occasions, during some portions of the day, when the sun unveiled, and even penetrated to the very underwood of the forest.

But even to the last day of my remaining here, when we had had nearly a fortnight's fine weather, with only an occasional shower, the tracks were still deep with mud, and only in the exposed situations could the mud be found less than ancle deep. This fortnight of fine weather was the harvest that was necessary to be fully improved.

The rapid ripening of the seed kept as many hands as I could procure from the hacienda occupied in felling the trees, and stripping them of their seed. After various trials, I found that the felling of the tree was the best way of proceeding under my present circumstances. My time was very short, and the quantity of seed suddenly ripened so plentiful, that to attain my object of getting a good supply of it I could afford to be extravagant, although much more seed was lost than what was gathered, still my limited time compelled me to adopt this plan.

During the fortnight we were engaged in this work, seven large trees were felled daily, and denuded of their capsules. At this same time the drying process had to be attended to in the hacienda, and every advantage to be taken of the sunshine, while the seeds were carefully protected from the breeze which, with our utmost care, did not fail to deprive us of some of them. Our spoil, having been so hardly earned, ensured this part of our operations being carried out with a jealous care, and the loss in this respect was reduced to a minimum.

By the 13th August, when it was necessary for me to leave, in order to arrive in Lima by the end of the month, the seeds were all carefully put up in outside wrappings of tar cloth, and every precaution taken to protect them from external influence. The small plants had been brought in and packed in bundles, between layers of the cryptogamous parasites of the coca shrub, overlaid with coverings of palm branches bound tightly together, and then enveloped in thicknesses of the woollen fabric of the country, called "xerga."

If it had not been for the great expense of carriage to the

coast, I should have brought more plants, as it would have been equally easy for me to have despatched from this district 100 cargas or loads of cinchona plants as the half-load to which I was compelled to limit myself, and which I felt exceedingly unwilling to conform to.

During the journey down, I had the plants soaked morning and evening, except those few days on which we were passing the cold region of the Cordillera.

They were in perfect health when put into the Wardian cases in Lima, as also when they arrived at Southampton, I having, during the passage home, made it my business to attend to them, so as to preserve the temperature at as equable a state as possible.

With regard to the geology of the district in and around Cocheros, Casapi, Carpis, the Tingo, &c., the rocks are of the primary formation, and, in many localities, highly disintegrated, large masses of hornblende, felspar, and micaceous minerals existing in great quantity.

The warmth of the climate (I allude to where the sun's rays are not intercepted by foliage), together with the almost constant moisture of the atmosphere (for it should be borne in mind that my visit was during the *dry season*), are no doubt highly conducive to disintegration, and hence the great fertility of the soil, derived, after the lapse of many centuries, from this particular class of rock.

Among all the distinct mineral species which abound on the surface of the earth, none are so rich in potash as felspar. This substance is very generally distributed in every direction, derived doubtless from the plutonic rocks by gradual disintegration. All the cinchona tribe are said to require a large quantity of potash for their full development, and hence the reason of their attaining such large proportions in this province.

The felspar which I brought to England, and which I have had examined by an eminent chemist, is pronounced by him to be, in conjunction with other mineral bodies, that best suited to form a rich and prolific soil, when heat and moisture have broken up its particles, rendering it thereby fit for assimilation by the plant.

There is also another mineral which is very abundant, viz., steatite, a silicate of magnesia and alumina. It derives its name from the soft and almost greasy texture it presents, resembling the solid portions of tallow or fat stearic acid. In the republics of South America the natives call it

"jabocillo," or soapstone, for a similar reason. The vast quantities which abound in the Huanuco districts generally, render them very interesting, both to the geologist and the mineralogist.

I cannot say, however, that I think the geology of the district, or, rather, the geological formation of the rocks (the primary source of the soils on which the cinchona plants grow,) to be the sole cause of their flourishing here better than in other parts of the world, as in many other portions of South America, particularly in Chili, Bolivia, and Columbia, I have noticed the same description of minerals with comparative little alteration. The whole chain of the Andes, from Cape Horn to the Isthmus of Darien, consists essentially of a species of granitic rock, termed "Andesite," differing somewhat from granite (properly so called) and from syenite, which was formerly supposed to constitute the great mass of that chain.

The region about Coquimbo in Chili is thickly strewn with disintegrated felspar. Mica, hornblende, steatite also abound, but the climate of these countries, especially near the coast, precludes the possibility of the growth of the cinchona, it being very dry, with cold south-easterly winds. Nearer to Cape Horn, indeed, much rain falls, but that frigid latitude is also adverse to the growth of a plant so essentially tropical. Hence a climate is also necessary as well as a soil, even though the cinchona may find in the latter, to a certain extent, a fitting and congenial pabulum.

The climate of these districts is essentially moist and warm. The difference in degree, however, between that of the lower parts of the mountains, the habitat of the *Micranthas*, and the higher, where the *Nitidas* are chiefly found, is very striking, and too much stress can scarcely be laid on this characteristic. I was prevented making observations with my thermometer, as it was disabled on its way down the valley of Casapi. The difference I speak of, therefore, is that of the sensible heat. That I am not mistaken is proved by the perceptible change so remarkable in the character of the vegetation. For instance, within a vertical distance of 200 to 250 feet it is scarcely possible for it to pass unnoticed. Another important condition, which favours the greater development of the vegetation of the lower levels, is the *greater depth* and infinitely richer quality of the soil. This is the natural result of the heavy

rains, which carry with them the most rich and soluble parts of the upper grounds, and deposit them on the lower, accumulating there its stores of incalculable vegetable wealth.

It merely remains to me to express my wish that the results of my collection of seeds and plants in India, will confirm my present impression, that the service which I had the honour of being entrusted with was not inefficiently carried out.

I have the honour to be, my Lord,
Your Lordship's most obedient Servant,
G. J. PRITCHETT.

No. 8.—INFORMATION WANTED.

We have been requested by Dr. Cleghorn to give publicity to the annexed letter from Mr. D. Hanbury, Plough Court, Lombard Street, the distinguished pharmaceutist, in the hope that some of our readers may be able to supply the desired information.—Eds.

My dear Sir,—As you suggested some time ago, I am going to note down as memoranda for us both, a few points on which it is possible you may be able to obtain information when you return to India, as well as a few other subjects to which I would ask your attention.

1. *Chiretta.*—To endeavour to obtain some of the herb, better dried for medicinal use.

2. *Elettaria cannœcarysa*, Wight. (*Amomum aculeatum*, Roxb.) Copy of drawing to send me at your convenience; also, some specimens of the plant (especially some bunches of the fruits, dried) if you come across it in the forests.

3. *Sclerotirem stipilatum*, B. et. C. To obtain, if possible, additional information about this singular substance, which is found in the cavities formed by the white ant.

4. *Mylitta lapidescens*, Horan. This fungus, called in Tamil *Carom-pallagum*, has been found in the chalk beds of the mountains between Travancore and Tinnevelly. The hill people, who bring it occasionally into Trevandrum for sale, assert that it is the root of a small plant with a red flower. Make further enquiry about it: is it parasitic? No one has examined the fungus in the fresh state.

5. *Toddalia aculeata*, Pers.; an authentic specimen of the *root* of this shrub would be very acceptable. The specimen should include some *thick* pieces, which may be sawn into lengths, if more convenient, for packing.

6. *Symplocos racemosa*, Roxb. If you have this tree in cultivation, and can spare a few small pieces of its *bark*, they would be valuable for comparison.

7. It seems to be made out that the inferior *Cassia* "*Buds*," called *Lovengoopoo*, are derived from *Cinnamomum iners*, Review. (*C. Malabathrum*, Batka)—n. ab Esen. *Syst. Laurin.* 38 : but what tree affords the Cassia *Bark* of Mysore, Travancore, and Cochin ?

I remain, my dear Sir,
Yours very sincerely,
DAN. HANBURY.

Dr. H. F. C. Cleghorn.
9*th Sept.*, 1861.

No. 9.—*Treatment of Delirium Tremens.* Letter from Surgeon Major J. L. Ranking.

To the Editors "Madras Quarterly Journal of Medical Science."

Sirs,—Although you are in possession of the fact, that on it coming to my knowledge through a friend, that my paper on Delirium Tremens had given offence to Mr. Ford, (who considered that it disparaged himself and my predecessors) that I wrote to that gentleman disclaiming any intention of reflecting in any way upon him or them, and expressing my regret that the paper could be construed into such an act, it is yet my duty to take an early opportunity to make the *amende honorable* through the pages of your journal.

I had wished to delay this letter till I could have accompanied it with a statement of certain errors which I have detected in the statistical part of my paper, and which I am under a promise to correct in your next issue ; but inasmuch as I cannot prepare that statement at present—the journals being with Dr. Ford—I have thought it better to address these lines to you with an intimation that a further communication will follow.

I may add that Mr. Ford has acknowledged my amende as being "frank and prompt," and that in addressing him direct, instead of through the Editor of the *Madras Times*, I adopted a course which appeared to my judgment more earnest of my sentiments, and at the same time (viewed in a professional light) more in accordance with the rules of medical ethics.

I am, my dear Sirs,
Yours faithfully,
J. L. RANKING.

Trichinopoly, 17*th Nov.*, 1861.

No. 10.—*Localities exempt from Cholera.* Letter from Surgeon Major E. BALFOUR.

To the Editors "Madras Quarterly Journal of Medical Science."

Gentlemen,—I yesterday read your remarks on Cholera, in No. VI. for October, 1861, in which my name is mentioned, in connection with former inquiries.

2. The subject has not been forgotten by me, nor overlooked. But, immediately after the Government of Madras gave me permission to inquire, I printed the letter overleaf. Within a few days thereafter, work of a heavy character devolved on me, and was the first hindrance to action. A month or two passed by, and the mutinies of 1857 began;—subsequently the agitation of amalgamation had its place, and such circumstances, in my opinion, have not been favorable for the mode of collecting information on the subject, which seems to me best. Now that things are settling down again, perhaps it may be possible for me to try what can be done, throughout Northern India, and in some parts of the Madras and Bombay Presidencies, from which replies did not come to hand.

I am, Gentlemen,
Yours faithfully,
Madras, *3rd Jan.*, 1862. EDWARD BALFOUR.

Extract from the Fort St. George Gazette.

Number 3055, Dated 5th September, 1856, Page 339.

Fort St. George, 5th September, 1856.

The following Notification is published for the information of the Authorities concerned.

Notification.

Deeming the investigation into the remote and proximate causes of Cholera, upon which Dr. Balfour is engaged, to be one of great interest and importance, the Right Honorable the Governor in Council is pleased to direct that all Civil, Political, Military and Medical authorities will afford to that Officer every assistance in their power, and supply him with such information as he may seek in the prosecution of his enquires.

By order of the Right Honorable the Governor in Council.

(Signed) T. PYCROFT, *Chief Secretary.*

Madras, 25th September, 1856.

From Surgeon Edward Balfour, Madras Army, Madras.

To

Sir,—I have the honor to solicit your valuable assistance towards completing the list of all the places in India, which have, since the year

1817, continued exempt from Cholera. The inquiry regarding such localities, which was commenced by me in 1849, has already brought to light the existence of at least 10,000 villages, towns, and districts hitherto wholly free from this disease; and the results up to this date, have been given in a Brochure entitled, "THE LOCALITIES IN INDIA EXEMPT FROM CHOLERA," which the Government have probably already placed in your possession. The above Notification of the Right Honorable the Governor of Madras, in Council, refers to this inquiry, and to the results recorded in the work in question: and as the book does not contain, any information regarding your district, I shall feel much obliged by your now favoring me with a return in the subjoined form, with a view to further publication. This mode of investigating the remote and proximate causes of Cholera seems important, as promising to afford much information regarding it, which, even if failing to make clear the mode of its origin and diffusion, will still be of value to those who, in this and other countries, are striving to discover the causes of this very obscure disease. Any account with which you may be pleased to favor me, of the physical condition and salubrity of your district, will be of much use; but with a view to admit, at any future time, of an examination of the places named by you, I would ask the favor of the undermentioned form being adhered to as far as may be possible.

I have the honor to be, Sir,

Your most obedient servant,

EDWARD BALFOUR,

Surgeon Madras Army, Madras.

FORM.

Return shewing the Names of Villages, Towns, &c., in the District of which have never been attacked with Cholera, since its first outbreak in the year 1847.

Name of Village or Town exempt from Cholera.	Name of the Talook and Zillah, in which the exempted Village or Town is situated.	Number of Houses in the exempted Village or Town.	Number of Inhabitants in the exempted Village.	Have troops ever marched through the exempted Village or Town?	Does fever frequently prevail in this exempted Village?	Distance and name of nearest Village where Cholera has occurred.	REMARKS.

METEOROLOGICAL RESULTS *from the Madras Observatory Register for the month of October* 1861.

1861.	Barometer corrected and reduced to 32° Fahlt.	Standard Thermometers. Observed Extremes. Maxm.	Observed Extremes. Minim.	Daily means. Dry.	Daily means. Wet.	Wind. Prevailing Direction.	Wind. Daily Velocity.	Depth of Rain.	General Remarks.
	Ins.	°	°	°	°		Mls.	Ins.	
1st Tues..	29·748	92·3	79·8	85·7	76·9	W.S.W.	163	.....	Light; cloudy.
2nd Wed.	·749	93·1	80·3	85·0	77·1	W.S.W.	155	.....	Do.
3rd Thurs.	·793	95·0	79·2	85·8	78·7	W.N.W.	149	0·022	Fine; shower about 4½ P. M.
4th Fri....	·779	93·3	77·9	86·2	79·4	N. W.	125	.....	Fine.
5th Sat...	·760	94·8	77·4	87·1	77·7	W.N.W.	117	.....	Light clouds.
6th Sun...	·778	93·3	78·4	84·9	77·4	N. W.	108	.....	Fine.
7th Mon...	·797	91·6	78·4	85·1	77·8	Variable.	101	.....	Do.
8th Tues..	·838	2·1	77·4	84·8	77·3	W. & E.	101	.....	Do.
9th Wed..	·806	93·3	77·8	85·3	76·4	N. N. W.	94	.....	Do.
10th Thurs	·804	92·5	78·2	84·6	75·6	Variable.	75	.....	Light clouds.
11th Fri....	·837	92·3	76·5	84·6	75·3	Ditto.	91	.....	Fine.
12th Sat....	·861	91·8	75·5	84·8	78·2	S. S. E.	75	.....	Do.
13th Sun...	·865	93·2	77·9	86·1	78·7	SW&SE	91	.....	Do. overcast at night.
14th Mon..	·879	90·9	79 8	85·1	79·2	S. S. W.	102	.....	Light clouds; clear night.
15th Tues..	·823	92·2	79·2	83·7	78·5	SW&SE	115	.....	Frequently clouded.
16th Wed..	·850	93·3	77·9	84·7	78·8	W.&S.E.	99	0·008	Fine light shower about noon.
17th Thurs.	·841	94·0	78·4	85·3	77·3	N.W.&E.	102	.....	Do with occasional clouds.
18th Fri....	·884	91·6	77·4	84·7	76·5	N.W.&E.	93	.....	Fine.
19th Sat....	·880	92·2	76·2	84·5	73·4	N.W.&E.	137	.....	Fine day; night overcast.
20th Sun...	·848	82·4	74·9	78·6	74·7	N. N. W.	113	0·575	[noon Overcast; rain at 3, 6 & 10 A. M. to
21st Mon..	·869	87·5	75·4	82·9	77·9	S. E.	113	.....	Frequent clouds.
22nd Tues..	·918	86·3	76·1	82·3	77·7	E. N. E.	86	0·585	Do. rain from 3½ to 4½ A. M.
23rd Wed..	·922	86·1	75·9	81·1	77·0	E. N. E.	87	·039	Light clouds.
24th Thurs.	·904	86·8	76·4	82·2	76·1	E. N. E.	90	.....	Do. [A. M.
25th Fri. ...	·891	86·5	76·2	80·6	76·6	N. E.	81	0.305	Chiefly overcast; rain about 3 & 8
26th Sat. ...	·894	86·6	75·9	82·4	77·2	E. N. E.	123	·009	Fine.
27th Sun...	·879	86·1	75·4	80·2	75·9	N. N. E.	103	.....	Do.
28th Mon..	·866	87·4	75·9	80·9	76·1	N. N. E.	96	.....	Light clouds; fine night.
29th Tues..	·876	86·6	76·6	81·8	75·2	N. N. E.	139	.....	Do. do.
30th Wed..	·873	87·1	74·6	81·1	74·5	N. N. E.	146	.....	Do. do.
31st Thurs.	·850	86·8	74·4	81·5	74·4	N. N. E.	150	.....	Nearly fine.

METEOROLOGICAL RESULTS *from the Madras Observatory Register, for the month of November* 1861.

1861.	Barometer corrected and reduced to 32° Faht.	Standard Thermometers. Observed Extremes. Max.	Min.	Daily Means. Dry.	Wet.	Wind. Prevailing Direction.	Daily Velocity.	Depth of Rain.	General Remarks.
	Ins.	°	°	°	°		Mls.	Ins.	
1st Fri....	29·841	86·6	75·4	81·0	74·9	N. E.	162	.....	Chiefly overcast. [and 7 P.M.
2nd Sat...	·860	83·8	74·2	76·6	76·0	N.	132	1·364	Overcast; rain at 6 A.M. 1¾ to 3½ P.M.
3rd Sun..	·873	86·8	74·0	77·9	75·3	N.	141	0·967	Do. do. 4¼ to 5, & after 10 P. M.
4th Mon..	·803	...	...	75·1	74·6	N. N. E.	132	1·396	Do. do. 8¼ A.M. and 2½ to 4 P.M.
5th Tues..	·736	...	...	78·8	75·8	N. N. E.	181	0·178	Do. do. 6 P.M. & 10 to midnight.
6th Wed..	·653	75·7	70·3	70·3	70·1	N. W.	245	4·982	Rain, from 4 A.M. to 4¼ P.M.
7th Thurs.	·670	81·7	70 2	73·2	73·2	W. N. W.	155	1·037	Overcast; rain after 9 A.M.
8th Fri....	·711	83·7	70·4	79·0	76·9	S. S. W.	153	0·505	Chiefly clouded; rain after 7 P.M.
9th Sat....	·780	88·2	76·4	79·6	77·0	S. W.	132	0·460	Morning finer; rain 4¼ to 5½ P.M.
10th Sun...	·803	88·1	76·0	78·5	77·1	Variable.	65	1·105	Fine morning; heavy rain at P.M.
11th Mon..	·797	86·3	74·8	79·0	76·8	W. S. W.	81	0·090	Overcast; rain aftor 1 P.M.
12th Tues..	·829	84·7	73·6	79·5	77·1	E.	60	.....	Light clouds.
13th Wed..	·817	86·4	76·4	79·9	77·6	S. E.	51	0·220	Do. rain from 2¼ to 3 A.M.
14th Thurs.	·859	80·0	76·0	76·8	75·0	N.	79	.....	Do.
15th Fri....	·861	84·6	73·4	76·9	72·8	N.	54	.....	Nearly fine.
16th Sat....	·885	82·6	70·4	75·4	70·9	N. N. W.	77	.....	Fine.
17th Sun...	·927	82·5	68·7	75·4	71·1	N. W.	74	.....	Do.
18th Mon..	·969	82.9	66·4	75·6	70·7	N.	59	.....	Do.
19th Tues..	·962	82·6	67·4	76·7	71·0	N.	76	.....	Do.
20th Wed..	·969	82·5	68·4	76·2	71·4	N. N. E.	113	.....	Cloudy; fine night.
21st Thurs	·993	81·5	68·9	76·9	70·3	N. N. E.	138	.....	Cloudy.
22nd Fri...	30·004	81·4	71·4	76·7	71·5	N. N. E.	124	.....	Nearly overcast.
23rd Sat...	·005	81·6	72·9	76·8	71·6	N. N. E.	179	.....	Fine.
24th Sun...	29·999	81·4	69·4	76·2	72·1	N. N. E.	143	.....	Do.
25th Mon..	·998	83·7	70·8	77·4	74·3	N. N. E.	164	.....	Nearly fine.
26th Tues..	30·014	80·4	73·6	76·7	74·1	N. N. E.	164	.....	Light clouds.
27th Wed..	·023	81·5	70·4	76·6	72·3	N. N. E.	172	.....	Do.
28th Thurs.	29·996	80·6	70·4	74·7	69·9	N. N. N.	147	.....	Fine.
29th Fri....	30·001	79·9	65·6	73·7	69·9	N. N. N.	141	.....	Frequent clouds.
30th Sat....	·005	81·0	66·2	75·7	72·7	N. E.	154	.....	Do.

METEOROLOGICAL RESULTS *from the Madras Observatory Register for the month of December* 1861.

1861.	Barometer corrected and reduced to 32° Faht.	Standard Thermometers. Observed Extremes. Maxm.	Minim.	Daily Means. Dry.	Wet.	Wind. Prevailing Direction.	Daily Velocity.	Depth of Rain.	General Remarks.
	Ins.	°	°	°	°		Mls.	Ins.	
1st Sun...	30·018	81·8	71·4	76·6	74·8	N. E.	172	.....	Chiefly overcast.
2nd Mon..	·013	81·4	74·4	75·8	74·0	N. E.	187	.....	Overcast.
3rd Tues..	29·991	80·6	70·9	74·8	74·0	N. N. E.	154	.....	Light clouds; clear night.
4th Wed.	·989	80·8	68·4	74·8	73·3	N. N. E.	132	.....	Do. do.
5th Thurs.	·983	82·7	69·4	76·8	75·7	N. N. E.	124	.....	Do. do.
6th Fri...	30·018	83·5	72·8	78·4	76·6	N. E.	144	.....	Cloudy; clear night.
7th Sat...	29·998	82·9	72·2	77·6	76·6	E. N. E.	157	.....	Nearly fine.
8th Sun...	·993	83·5	70·9	77·2	77·1	N. E.	106	0·40	Overcast till midnight.
9th Mon..	30·008	82·8	72·2	76·2	74·5	E. N. E.	125	.....	
10th Tues..	29·997	83·6	68·4	75·2	73·6	N. N. E.	86	.....	
11th Wed..	·949	83 5	67·8	74·8	73·4	E.	80	.....	
12th Thurs.	·919	81·5	67·2	75·0	73·7	S. E.	64	.....	Fine throughout the week.
13th Fri....	·932	82·0	67·6	75·5	74·1	E.	79	.....	
14th Sat. ...	·959	83·0	69·2	76·6	74·9	E. N. E.	85	.....	
15th Sun...	·947	84·1	69·6	77·6	76·5	N. E.	107	.....	
16th Mon..	·929	82·8	70·6	76·7	74·9	E. N. E.	86	.....	Nearly fine.
17th Tues..	·921	82·5	69·4	77·3	75·6	N. E.	130	.....	Fine.
18th Wed..	·952	83·4	69·4	77·3	74·7	N. E.	118	.....	Hazy.
19th Thurs.	·965	82 6	70·4	76·8	72·2	N. E.	132	.....	Cloudy.
20th Fri....	·970	82·1	68·9	76·0	69·1	N. E.	122	.....	Lighter do.
21st Sat....	30·010	81·8	68·1	77·0	69·4	E. N. E.	170	.....	Cloudy.
22nd Sun...	29·998	81·9	70·6	75·7	68·6	N. E.	125	.....	Do.
23rd Mon..	·999	82·8	67·6	75·7	67·3	N. E.	122	.....	Nearly fine.
24th Tues..	·990	81·4	69·3	76·6	67·5	N. E.	155	.....	Frequent clouds.
25th Wed..	30·004	81·4	71·4	75·9	67·6	N. E.	136	.....	Dull day; clear night.
26th Thurs.	·016	82·1	66·4	75·7	67·4	N. E.	124	.....	Fine till evening.
27th Fri....	·044	81·1	66·0	75·3	68·2	N. N. E.	107	.....	Cloudy.
28th Sat....	·000	81·1	68·9	73·9	67·0	N. E.	89	.....	Light clouds.
29th Sun...	29·978	80·9	65·4	74·0	67·8	N. E.	96	.....	Do.
30th Mon...									
31st Tues..									

PART IV.

MEDICAL INTELLIGENCE.

APPEALS REGARDING PAY AND ALLOWANCES HOW TO BE SUBMITTED.

MILITARY DEPARTMENT.

GENERAL ORDERS BY THE GOVERNOR IN COUNCIL.

Fort St. George, 4th October, 1861.

No. 340 of 1861.—Instances having occurred of questions connected with Pay and Allowances being submitted to Government without previous communication with the Pay Department, the Governor in Council directs that all such communications be, in the first instance, referred to the Examiners in the Pay Department, by whom, if necessary, they will be forwarded to Government for disposal through the Controller of Military Finance.

REGULATIONS CONCERNING THE GRANT OF PRIVILEGE LEAVE BY HEADS OF DEPARTMENTS.

Fort St. George, 18*th October*, 1861.

The following Proceedings of the Madras Government, in the Financial Department, dated 17th October 1861, No. 506, are published for general information.

The Governor in Council resolves, to vest the Court of Sudder Adawlut, the Board of Revenue, and the Chief Engineer, Public Works Department, with the power to grant *privilege* leave to the full extent to all Officers subordinate to them under the grades noted in the margin, a previous reference however being made to Government when it is necessary to appoint an Officer to act for the absentee. Applications for such leave should be submitted to the above mentioned authorities through the prescribed channel, and be settled by them after reference to the Audit Office.

Civil and Session Judges.
Collectors and Magistrates, and Agents to the Governor.
District Engineers.

2. The controlling authorities named in the margin are also vested with power to grant leave similarly to all Officers subordinate to them, subject to the same provisions.

Director of Public Instruction.
Inspector General of Police.
Superintendent of Marine, except to Master Attendant of Madras.
Principal Inspector General Medical Department, as regards Civil Medical Officers.
Director of Revenue Settlement.
Superintendent of Revenue Survey
Inam Commissioner.
Conservator of Forests.

3. Notifications of the grant of privilege leave by the several authorities will be forwarded direct to the Superintendent of the Government Press to be published in the *Fort St. George Gazette.*

By order,

(Signed) J. D. SIM,

Secretary to Government.

NOTIFICATION.

The attention of officers at the head of Military Departments who are authorised to grant privilege leave to the Officers under them, is requested to the terms of the Regulation under which such leave is admissible, from which it will be observed that whether the leave of absence is for 60 days or for 30 days, it must in either case be in consecutive days, and not in broken periods.

Pay Code, page 13, para. 63.

T. McGOUN, Lieut. Colonel.

Controller of Military Finance.

OFFICE OF CONTROLLER OF MILITARY FINANCE.

Fort St. George, 4th December, 1861.

Fort St. George, 10th December, 1861.

No. 437 of 1861.—The following Extracts from a Military letter from the Government of India, No. 930, dated 23rd November 1861, are published for general information :—

"Though an Officer taking privilege leave may proceed wherever he may desire, he cannot proceed to such a distance as must preclude the possibility of his rejoining within the period of such leave. Thus as privilege leave, under Military rules, is limited to 60 days, and it is impossible, under existing arrangements for transit, to visit Europe and return thence within that period, an Officer cannot go to England on privilege leave on Military rules.

"Government alone can grant an Officer leave to visit Europe."

RULES FOR THE GUIDANCE OF OFFICERS DRAWING PAY AND ALLOWANCES THROUGH THEIR AGENTS.

Fort William, the 18th October, 1861.

No. 941 of 1861.—The following Rules, regulating the power granted to Officers to draw Pay and Allowances through their Agents when on leave beyond the limits of their own Presidency, are published for general information and guidance :—

I. Officers proceeding on leave beyond the limits of their own Presidency will be permitted to draw their Pay and Allowances through their Agents on the latter furnishing, through the Military Accountant to the Controller of Military Finance, a satisfactory guarantee for the refund of over-payments.

II. The Agent will not be held responsible for sums which he may have received under audit, and remitted to his constituent, except in cases where his constituent may bring himself, with retrospective effect, upon Furlough pay from the date of quitting his own Presidency by the following acts :—

1. By overstaying the leave to sea for two years on medical certificate, or for six months on private affairs, which he may have obtained under the old Furlough Rules.

2. By proceeding to England from the leave aforesaid under the old Furlough Rules, without having returned to his own Presidency.

3. By proceeding on Furlough from another Presidency, in which he had been staying on leave, without previously returning to his own Presidency.

COMMUNICATION BY TELEGRAPH.

No. 2522 A.—It has hitherto been not uncommon for officers requiring information from Government regarding leave, change of station, and other personal matters of a similar kind to request that the replies may be forwarded by Telegram.

II. It is therefore notified for the information of all concerned that hereafter no reply will be sent by Telegram to any reference or question in the remotest degree of a private nature, if sent by Telegram unless the reply be prepaid, or if sent by post unless a sufficient number of postage stamps be enclosed to cover the cost of the answer by Telegram.

By order,

(Signed) T. PYCROFT,

Chief Secretary.

HOME DEPARTMENT.—No. 1987.

Fort William, the 5th November, 1861.

The Governor-General in Council directs that public officers having occasion to communicate on the public service by Telegraph, shall invariably note upon every Message the date of its despatch, the additional words will form part of the Message and be paid for accordingly.

(Signed) W. GREY,
Secy. to Govt. of India.

CHANGES IN THE MADRAS MEDICAL ESTABLISHMENT DURING THE QUARTER.

Officers Permitted to Return to Duty.

8th Nov. 1861.—Surgeon H. F. Cleghorn, M.D., Conservator of Forests, arrived 28th October, 1861.

19th Nov.—Surgeon Major B. S. Chimmo, arrived 25th October, 1861.

6th Dec.—Surgeon Major J. Mackintosh, arrived 25th November, 1861.

6th Dec.—Assistant Surgeon J. A. Cox, M.D., arrived 25th November, 1861.

Officers Permitted to Proceed to Europe.

Surgeon Major J. Middlemass, 3rd Regt. L. C., on s.c. 18 months, G. O. G. No. 347 of 8th October, 1861. (*Died at Sea.*)

Assistant Surgeon A. Boggs, 5th Infantry Hyderabad Contingent, on s.c. 15 months, G. O. G. No. 367 of 18th October, 1861, N. R.

Assistant Surgeon G. H. Alexander, M.D., on s.c. 18 months, G. O. G. No. 374 of 25th October, 1861, N. R.

Assistant Surgeon A. J. Scott, M.D., on s.c. 6th December, 20 months.

Veterinary Surgeon D. Cullimore, 3rd Regt. L. C., on s.c. 24th December, 15 months, N. R.

Officers Permitted to Retire from the Service.

Surgeon Major A. Lorimer, 12th June.

Surgeon Major T. W. Whitelock in Europe, from 12th August 1861.

Removals and Postings.

Asst. Surg. J. McDonald, from 13th Regiment N. I., to Zilla Surgeon of Rajahmundry.

29th October 1861.—Assistant Surgeon J. J. Heffernan, to Civil Surgeon at Shoaygheen.

Assistant Surgeon T. G. Howell, to 13th Regt. N. I.

1st Nov.—Surgeon Major T. C. Jerdon, from 11th Regiment N. I., temporarily placed at the disposal of the Government of India.

4th Nov.—Surgeon H. Cleghorn, M.D., Conservator of Forests, temporarily placed at the disposal of the Government of India.

16th Nov.—Surgeon C. B. Craske, late promotion, to 10th Regiment N. I.

Surgeon F. Fletcher, late promotion, to 27th Regiment N. I.

22nd Nov.—Assistant Surgeon G. Williamson, M.D., from Artillery Secunderabad, to 1st Infantry Hyderabad Contingent.

Assistant Surgeon D. C. McAllum, M.D., from 1st Infantry Hyderabad Contingent, to Durbar Surgeon, Hyderabad.

6th Dec.—Assistant Surgeon G. S. W. Ogg, M.B., M.A., to Zilla Surgeon of Coimbatore.

10th Dec.—Assistant Surgeon W. Aitkin, M.D., to Acting Assistant Assay Master.

13th Dec.—Surgeon Major J. E. Mayer, to Acting Chemical Examiner at the Presidency.

20th Decr.—Assistant Surgeon C. Robertson, M.D., to Zillah Surgeon Masulipatam.

Assistant Surgeon S. Rule, M.D., to Zillah Surgeon, Mangalore.

Assistant Surgeon E. D. Evezard, to 42nd Regiment Native Infantry.

Assistant Surgeon H. Griffith, from d. d. H. M.'s 105th Regiment Light Infantry, to d. d. Department of Deputy Inspector General of Hospitals Pegu Division.

Assistant Surgeon H. R. Handyside, from d. d. H. M.'s 102nd Regiment, to d. d. H. M.'s 105 Regiment Light Infantry.

21st Dec.—Surgeon F. Fletcher, 27th Regiment Native Infantry, to officiate as Zillah Surgeon Cuddapah.

Promotions.

19th Nov. 1861.—Senior 1st Class Assistant Surgeon F. Fletcher.

19th Nov. 1861.—1st Class Assistant Surgeon J. H. Blackwell.

Warrant Medical Officers—Removals and Postings.

11th Oct. 1861.—Apothecary J. North, from Collector's Establishment of Bellary, to Garrison of Bellary.

Assistant Apothecary J. Middleton, from Department of Deputy Inspector General of Hospitals Ceded Districts, to d. d. Collector's Establishment of Bellary.

Assistant Apothecary W. L. Crawford, from 1st Madras Fusiliers, to European Seamen's Hospital, Singapore.

15th Oct.—Apothecary J. Alcock, from Medical Stores, Rangoon, to Acting Sub-Assistant Surgeon Pegu Sapper Battalion as a temporary measure.

Assistant Apothecary W. D. Master, to d. d. Department of Deputy Inspector General of Hospitals Northern Division.

Warrant Medical Officers transferred to the Pension Establishment in India.

2nd Apothecary G. O'Hara, invalid pension, of Rs. 60-14-0 per month, 29th October, 1861.

Warrant Medical Officers permitted to Resign the Service at their own request.

Assistant Apothecary H. Cunningham, G. O. G. No. 387, 5th November, 1861.

Assistant Apothecary A. C. Thomson, G. O. G. No. 423, 29th November, 1861.

THE MADRAS

QUARTERLY JOURNAL

OF

MEDICAL SCIENCE.

APRIL 1, 1862.

PART I.

ORIGINAL ESSAYS.

ART. XI.—*Notes on Morbus Pedis Entophyticus.* By GEORGE BIDIE, M.B., Mysore Farm.

(*With an Illustration.*)

WHILE Civil Surgeon at Guntoor, I frequently saw cases of an extraordinary disease of the foot, which was quite new to me and undescribed in any systematic work on Surgery. Anxious to learn its history and discover its true nature, I devoted considerable time and attention to its study, and the substance of the following paper, which formed part of the Report of the Civil Dispensary at Guntoor for the year 1860, is the result of my labours.

Since it was written I have been favoured by Dr. Carter,* Professor of Anatomy, Bombay, with a highly interesting small work on the same subject. As many, however, may not have the advantage of seeing it, I have thought it better to lay this paper also before my professional brethren.

* I regret much that Dr. Carter's invaluable paper did not reach me before concluding my own, as it, in that case, might have been much improved and extended. With no fresh specimens available, I am afraid to open the subject again; but would express a hope that, when the true place of the entophyte amongst fungi has been ascertained, due honour may be given to Dr. Carter, its first discoverer, in assigning a name to it.

This disease is quite *sui generis.* It has been met with in various parts of the Madras and Bombay Presidencies, but is most common in the Districts of Guntoor, Bellary and Madura. It only occurs in the adult; and persons of from 30 to 50 years of age are most obnoxious to an attack. It appears to be chiefly confined to the male sex. It is not peculiar to any class of society, but is most common amongst the poorer orders. It has rarely or never been met with in any other part of the body than the foot. It never attacks more than one extremity at a time, and when that has been removed, it never appears in any other part of the body. The subjects of the disease do not present that appearance which marks the presence of a malignant affection, nor are they distinguished by the characteristics indicative of the scrofulous diathesis. The mode of accession is obscure, as patients never seek relief until the disease has reached an advanced stage of its progress. So far as can be learned, it would seem to begin as a small, moveable, firm, painless, subcutaneous tumour, often located on the lateral aspect of the foot. Gradually this tumour increases in size, and, as it extends its ravages to the deeper tissues, it becomes immoveable and slightly painful. In from two to three years after its commencement one or more openings appear on its surface, and from these a scanty, thin, semi-purulent discharge, containing minute granular bodies, drains. At length the entire foot becomes affected and enlarged to three or four times its natural size; and the swelling and morbid structure may extend up into the middle third of the leg. Patients asking relief generally state that they have been suffering from six to eight years. The swelling is then firm and regular to the touch, the skin unchanged in appearance, and the toes of natural size, but widely separated. The surface of such a foot exhibits many small irregular openings, communicating with deep sinuses. There are also numerous superficial wart-like tubercles, indicating the vents of past or present sinuses. Notwithstanding such grave local changes, the general health may remain almost unimpaired. Even after the disease has continued for years, there are in general few symptoms to indicate the presence of so serious an affection, beyond debility, leanness and a somewhat dejected aspect. At times, however, in cases of long standing, hectic fever or diarrhœa, or both may supervene, terminating in death, should relief not be afforded by removing the diseased limb.

MORBID ANATOMY.

The progress of the disease may be divided into three stages, having reference to the extent of structures involved, and the changes in them apparent to the naked eye.

1*st Stage.*—Disease confined to a portion of the foot, being a firm, moveable or immoveable tumour, with or without a breach of surface. Openings, if any, discharging a thin semi-purulent fluid, sometimes containing small granular bodies. Hypertrophy of subcutaneous and intermediate cellular tissue, with ill defined loculi containing a white caseous matter or small concretions of a dirty white granular substance. Extensive deposition of fat cells, especially immediately under the dermis.

2*nd Stage.*—All trace of a distinct tumour lost; foot three or four times larger than natural size. Disease not extending beyond the limits of the foot. Surface of foot studded with tubercles, about the size of buck shot, and exhibiting small openings leading down into deep sinuses, giving exit to a scanty discharge, containing minute portions of a caseous-like matter or small granular bodies. Cellular tissue partially disorganised and of a gray colour, adipose tissue loose and discoloured. Fat globules rolling in all directions, and an unhealthy puriform pulp abundant. Depositions of caseous and granular matter much increased in number and size. Bones in general softened and honey-combed, the soft caseous or compact granular substance having taken the place of the normal structure.

3*rd Stage.*—External appearance of foot similar to that in second stage, but some increase in size; and sometimes an extension of the disease to the lower or even middle third of the leg. Tubercles, already spoken of, and sinuous openings have never been observed above ankle. Discharge from openings similar to that in second stage. A scalpel may, with the greatest ease, be passed through and through the foot in all directions, its normal structures having become completely disorganised. A soft mass consisting of caseous-like matter, granular bodies, an unhealthy puriform pulp, adipose tissue and gelatinous-like substance, occupies the place of the soft tissues. Bones are either completely destroyed or deprived of earthy constituents, honey-combed and easily torn or cut; the cavities made by the destructive process being occupied chiefly by the caseous or granular matter. Medullary canal of tibia generally much increased in size. It has been affirmed by some observers that the

disease never reaches higher than the ankle, but I have in several instances found the granular and caseous substances, characteristic of the disease, as high up as the middle third of the leg. The order in which the various tissues succumb to the disease, would seem to be as follows :—

1st. Cellular Tissue.
2nd. Bone and Cartilage.
3rd. Muscle.

Tendons appear to resist the destructive process for a long time, for in a foot in which all the other tissues have been reduced to a pulp, I have found the tendons nearly intact.

MICROSCOPIC EXAMINATION.

Reference has already been made to the existence of a caseous-like substance and concretions of granular bodies. On placing a portion of the former under the microscope, it is found to consist chiefly of certain extraordinary bodies, the physical characteristics of which we shall now attempt to describe. There are also with these numbers of fat globules, and there may be some unhealthy puriform matter. The bodies under consideration are not regular in shape, but their usual form is roundish, as represented in Fig. 1 of the diagram (Pl. II.), that shewn in Fig. 2 has, from pressure, lost its circular outline.

Viewed with transmitted light they are of a light brown colour.

The edge is irregular, dark and abrupt. Radiating from the margin there may, in general, be observed numerous transparent spiculæ, not fragile, but stiff and strong. The spiculæ are commonly accuminated, but sometimes blunt. The whole field is in general strewed with tufts of unattached spiculæ, bearing marks of the act of separation. From the fact of these spiculæ being so numerous, and from having met with the body represented in Fig. 3, I have been led to think that Fig. 3 represents the body under consideration, in its most perfect form. The spiculæ very much resemble the raphides in plants, and at times have a resemblance to the spiculæ of some sponges. They are unaffected by water, acetic acid and the alkalis; but destroyed by nitric acid. In size the bodies vary very much, but are in general about $\frac{1}{250}$th of an inch in diameter. They are moderately transparent, and their surface is irregular, and sometimes marked by furrows or wrinkles. In substance they

Fig. 1

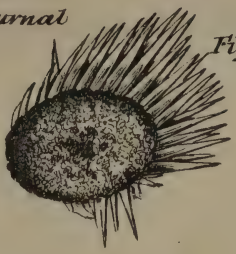

Fig. 2

Fig. 3

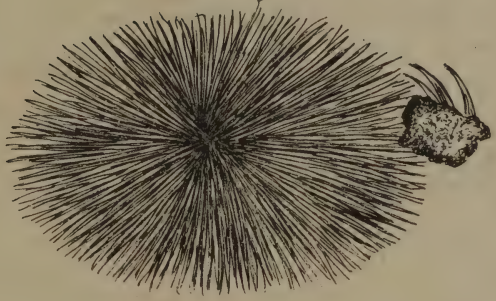

Fig. 4

Fig. 5

are firm, and would seem to consist of a tough envelope containing a firm gelatinous substance mixed with very minute dark coloured granules. There is no trace of a nucleus: when subjected to the Iodine solution and acid. Sulph. they do not in general shew any trace of cellulose, but I have twice noticed the blue tinge, and therefore, taking into consideration their entire history, have no hesitation in regarding them as entophytes. They are not affected by acetic acid, æther or alkalis. Nitric acid destroys their form, changes their colour and leaves an amorphous mass.

It now remains to speak of the granular bodies. They vary in size from that of a pin point to a grain of mustard seed. Viewed under a low objective, they are not globular, but very irregular in shape and surface. Broken up by slight pressure, or in thin section, they are seen to consist of the bodies recently described simply glued together, Fig. 4, or containing in addition numerous branching transparent delicate filaments such as are seen in Fig. 5. The granules containing filaments are most common in cases of not very long standing, or, in old cases, far up the leg where the affection may be said to be recent.

The disease would appear to be developed as follows. First comes a spore which gradually puts out filaments or mycelia, and these in their turn give rise to new spores. These again by undergoing certain changes, dependent on their position, become transformed and enlarged into the bodies which, when free, may become surrounded with spiculæ, and, when agglomerated, form the large granules just described. The sporules that are free would seem, when arrived at maturity, to be multiplied by a process of transverse division; and thus there are two schemes of development in operation in one disease. As to the mode of introduction of the first sporule, that is a matter of extreme difficulty, but, once there, its development is no doubt dependent upon some marked disorder, local or general. It seems to me the most rational course in all such diseases to regard the entophyte as in its natural place, and to consider its development, so as to excite disease, as the consequence of certain morbid conditions. The student of Nature is well aware that in earth, air and water, there are immense stores of dormant seeds, ovules and spores, which require but the influence of favouring circumstances, to awake them into active life.

With no recent or special work on Entophytes at com-

mand, it is impossible to assign this one its true place amongst its fellows; but I think it will be found to belong to the division Arthrosporei, and very likely the Tribe Oidiei, and that it is the representative of a new genus.* I would also suggest as a provisional name for the disease, that which heads the present article.

TREATMENT.

Local remedies, such as issues, blisters, &c., and any general treatment are of no avail. Amputation of the leg or foot, so as to remove the whole of the disease, will be found the only effectual remedy. The rate of mortality after operation is in such cases remarkably low. Out of about 30 cases in which amputation was performed, as recorded at Guntoor, I do not think that one proved fatal.

Art. XII.—*Remarks on Homicide as witnessed in Civil Medical Practice in India.* By J. Shortt, M.D., Zillah Surgeon, Chingleput.

It is generally believed that the appointment of Civil Surgeon is a perfect sinecure; such it may be in a few instances, but, in the majority, in addition to the ordinary Medical duties of the Sudder Station, Superintendence of Vaccination, &c., Medico-legal questions are constantly occurring, which may be submitted for his opinion, by the Magistrate: or he may be called on, by the Civil and Sessions, or other Subordinate, Judge, to give evidence in criminal cases, on oath in open Court. Some of the cases thus submitted for his opinion, are singularly intricate, the more so, from his frequently not being furnished with a single guiding fact to aid in the matter.

The following case speaks for itself:—

"On the 18th June 1861, the Sub-Magistrate submitted some bones to me for examination to ascertain whether they were human or animal.

On the 19th, I was requested to attend at the Principal Sudder

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* In fact I have no description of the characters of the Division and Tribe referred to, but trust to memory and comparison with other members of same Division and Tribe.

Ameen's Court, for the examination of these same bones, and on the usual oath being administered, I made the following statement :—

The bones submitted for my examination and report were the following.

1.—1 skull.

2.—7 cervical vertebræ.

3.—4 upper dorsal vertebræ, with 1st and 2nd rib attached.

4.—6 dorsal vertebræ, with the bodies broken off, the two first having a rib attached to each, with a strip of ligament.

5.—The left half of the lower jaw broken off, in line with 1st premolar tooth, and containing two bicuspids, and one molar tooth. The 2nd molar tooth just visible above the alveolus.

6.—Right scapula, with coronoid and acromion processes, broken off.

7.—Right humerus, with the anatomical head and epiphysis of the upper and lower extremities, wanting.

8.—8 separate ribs.

9.—A lock of hair (the *coodomie* or pig tail).

On examination the skull was found to be oblong, well formed, and to measure 18 inches in circumference. The sutures were well knit, and the upper portion of the squamous part of the left temporal bone wanting, thus leaving an arched opening, about an inch wide in the centre, and two inches in length, from side to side. One end being in line with the mastoid portion of the temporal bone, and the other with that of the zygoma, where it articulates with the malar bone to form the zygomatic fossa, and from thence a fissure extends through the great ala of the sphenoid bone.

Immediately below the parietal eminence, on the same side, there is an indentation, with an irregular fracture extending to the free margin of the bone.

The upper part of the indentation is about one inch and a quarter wide, and of a semicircular form, this portion of bone is fissured, corresponding with the semicircle of the indentation.

The left styloid process is about $\frac{3}{4}$ of an inch long, with the point stumpy, as if broken off. The right styloid process is wanting.

The bones of the face are complete, except that the four incisors and two canine teeth, are absent.

There are in the alveoli, four premolars, and two molars, a second molar tooth is visible just above the level of the socket on each side.

Both sides of the head, more particularly that of the lower part of the right parietal, frontal, and temporal bones, are stained of rather a light brown colour.

The seven cervical vertebræ are in situ, and are articulated by ligaments, which are now perfectly dry—they measure three inches in length. The four upper dorsal vertebræ are also connected by ligament, with first rib in situ, and the second adherent, by its tuberosity, to the vertebræ by a strip of ligament.

Of the six dorsal vertebræ: their bodies are wanting, three of the arches and processes of these bones are held together by ligament, the others are in separate pieces.

The scapula is small, measures transversely $2\frac{3}{4}$ inches, and longitudinally four inches. The acromion and coronoid processes are broken away at their base.

The left half of the lower jaw measures in length $3\frac{3}{4}$ inches, contains the two premolars, and one molar, whilst the 2nd molar, is visible in level with the socket. The mental foramen is present.

The humerus is that of the right arm ; the anatomical neck, and the epiphysis of both extremities are wanting, the bone in its present state measures $1\frac{3}{4}$ inches in circumference, and $7\frac{3}{4}$ inches in length.

The 8 separate ribs are those belonging to the upper part of the chest, forming, with those adherent to the dorsal vertebræ, the first six pairs, or superior ribs.

From the preceding facts I feel justified in coming to the conclusion—

1.—That these bones are portions of a human skeleton.

2.—That the skeleton was that of a boy.

3.—That this boy was between 12 and 13 years of age.

4.—That his stature was about 4 feet, 2 inches.

5.—That his hair was black, with the ends having a brownish tinge.

6.—That during life, the bones of the skull had sustained fracture.

7.—That this boy died of fracture of the skull, attended with hæmorrhage, and that the cause, to all appearance, was homicidal.

8.—That the indentation and fracture of the skull was apparently the result of a blow, from either a stick or some such blunt instrument.

9.—That from the state of the bones, and the vestiges of cartilage and ligaments about them, death must have occurred some one or two months ago.

(Signed) JOHN SHORTT, M.D.,
Zillah Surgeon.

Sworn before me in open Court this 19th day of June 1861.

(Signed) T. ALLAGHIAH,
Principal Sudder Ameen."

EXPLANATION.

1. The formation of the skull, clavicle, humerus, vertebræ, ribs, &c., indisputably prove that these bones are portions of a human skeleton.

2. That these bones are portions of the skeleton of a boy. Had they been those of a girl, they would probably have been of a smaller size, less weight, and of much lighter conformation.

The skull measures 18½ inches in circumference, half a dozen dry adult skulls measure 20 inches, and those of 100 natives between the age of 18 and 25, give an average of 21 inches. The heads of 25 youths supposed to be of the same age, as the skull under examination, from the number of teeth present in each, measure 19·6* inches in circumference. From these experiments, and from the sutures of the skull being well knit, the diaphysis of the humerus or arm bone not being consolidated with the epiphysis,† and the posterior border of the scapula being tipped with cartilage‡ to nearly the breadth of a ¼ of an inch, I am confirmed in the opinion that the skeleton was that of a boy.

3. The presence of the 1st permanent molar, and the 2nd having attained the level of the socket, shows it to have been ready to extrude through the gum.

The various authors quoted in the margin agree in pronouncing that the 2nd permanent molar is ready to come through the gum, between the ages of 12 and 13, I have found the same in the 25 native lads whose heads were measured.

Vide Fox on the Natural History and Disease of the Teeth, 1833, Chap. v., page 49; see also Plate X. Fig. 5, B. and C.; see also the following books.

Tomes' Dental Surgery, 1859, page 103.

Wilson's Anatomy, "Article Teeth," page 74.

The 2nd permanent molar tooth is found to have advanced to the same extent in the lower jaw also. These facts confirm my opinion as to the age of the skull under examination.

4. Judging from the size and length of the vertebræ

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* Vide Table appended.

† "Bony union does not take place before 18 or 20 years of age." Vide Guy's Forensic Medicine, page 32, Edition of 1844.

‡ "Ossification of the margins of the scapula does not occur before the 17th or 18th year."—*Ibid.*

of the neck, as they were articulated, the length of the humerus, (minus the epiphysis) and the average height of 25 native youths, whose mouths and heads were examined, I arrive at an opinion as to the supposed height of the boy, to whom the bones belonged.

5. The lock of hair submitted with the bones, enabled me to decide this question. My own observation confirms what I have stated, having frequently seen boys going about the villages bare headed, with the ends of their *codoomie*, or pig-tail brown, probably the result of exposure to the sun, &c.

6. The stain on the bones of a light brown colour, to the extent of a couple of inches, around the seat of fracture, was the result of the injury, producing infiltration of blood into the surrounding tissues and bone. But the discolouration of the bones on the right-side of the skull, in somewhat a defined form, may be accounted for by the position of the skull, blood will have gravitated into the cavity about the time life became extinct, if not before, and from its being collected about that part, as the most dependent, the colouring matter of the blood is likely to have infiltrated these bones so as to cause the stain now perceptible.

7. The fracture of the squamous portion of the left temporal bone may have been compound, as well as comminuted, as no piece or pieces were produced, the blow that inflicted the fracture must have been attended with considerable hæmorrhage, as evidenced by the blood stain (the light brown stain alluded to in the description). A fracture of the squamous portion of the temporal bone would have carried with it extensive lesion of the blood vessels, more particularly those of the meningeal artery which lies over that part of the bone.

Death in this instance must have been more or less immediate, for a force that could have produced so defined a fracture at that part of the skull, where the bone is very thin, must at the same time have caused considerable injury to the brain, and death resulted from the shock* to the system as well as from the hæmorrhage, or it may have been produced by concussion and compression, following each other in rapid succession. I have not the slightest doubt

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* Vide Druit's Surgery, Chap. x., page 316, Pathology.

of its being a case of murder—the nature and situation of the fracture at once controverts its being suicidal.

8. The injury to the skull under examination, appears, from its size and form, to have been inflicted with a stout stick. The brittle and translucent nature of the squamous portion of the temporal bone, at once accounts for the defined form of the fracture from the result of a blow. The same cannot be said of the indentation next to it. The shape of the indentation on the parietal bone is convincing, the bone did not give way here, in consequence of its increased toughness, from the "sponginess of texture" invariably present in childhood,* to which the temporal bone may be termed an exception. The same force brought to play on an adult skull would, in all probability, produce comminution. The outer table of the parietal bone at the seat of injury is fissured slightly, by the force that caused the indentation. These injuries are the result of direct force, and may not be attributed to a fall, as the temporal region is not likely to form the seat of injury, more especially of that defined form, unless it is assumed to be a fall, and that portion of the skull to have come in contact with a stone or stones, which is impossible. Nor could an injury of the kind so well defined, be produced by a wild beast, of which fortunately there are none in the district.

9. The appearance of the bones, with most of the cartilages and ligaments uninjured, seems as if the body had been imperfectly buried, and exposure to the sun and air had dried them; from all I see, I am reassured in the belief that life must have become extinct, from the said boy, about 6 weeks or 2 months ago.

" Sentence in Case No. 62 of 1861, on the Chingleput Calendar. Sandiammai *versus* 1 Túlukkanum, 2 Mangini, and 3 Govendan.

MURDER.

Charge.—That the prisoners on the 6th May 1861, did wilfully, and of their malice aforethought, kill, and murder, one Narasu, the son of the Prosecutrix Sandiammai, at Palúr, Chingleput Talúq.

The prisoners pleaded not guilty throughout, but the 1st prisoner admitted before the Sub-Magistrate, as proved by the

* Vide Human Osteology, by Luther Holdon, F.R.C.S., page 3.

attesting witnesses, to his Police declaration, that he did collect certain human bones and skull, and deposited them in the bushes of prickly-pears.

Neither the Prosecutrix nor any of her witnesses bear testimony either to the fact of the murder having been committed by the prisoners, or to any circumstances calculated to connect them with the crime. Prosecutrix, mother of the deceased, simply declares that her son had been missing, that the 1st prisoner gave her information of the spot where the deceased's head cloth, a small earthen pot, his worn-out slippers, and old basket were lying, that she suspected the prisoners of the crime, on the supposition they might have borne spite against the deceased for the reason of his having declined giving them toddy gratis, as they asked him to do.

The 1st witness informs that on the 8th May last, he drove his bullocks to water in Villiambakkam Channel where he smelt a corpse, that on his approaching the prickly-pear bush, whence the stink proceeded, he discovered skull and other bones scattered about, which, he suspected, might be those of the "Sanara" boy who he heard was missing, and that the spot where the remains were seen, is an Indian mile distant from the burning ground, and frequented by wolves and other carnivorous animals. He further says that on his again going, the next day to the spot, in company with the 2nd witness, he fell in with the 1st prisoner, who, being told that there lay bones, concealed them in the bush, saying that he would get into trouble should these be seen, he being a "Cirkar man," and having reported to the Talúq that there was no corpse to be found. Deponent identifies the bones as those he saw near the bush. He is supported by the 2nd witness.

The 3rd witness deposes to his having seen the bones, and his having doubted them to be the remains of "Narasu," the deceased boy.

The 4th witness, a Police Head Constable, says that on the receipt of a report from the Village Inspector, 12th witness himself and Mr. Beeby, Inspector, repaired to Palúr, that the 12th witness informed the Inspector that Prosecutrix charged prisoners with the murder of her deceased son, that she found the basket, &c., near "Pattiam Cuttai" within the limits of Palúr. Deponent adds that Prosecutrix produced two baskets, as many rags, a small pot, and a pair of slippers, and swears that there was no sign of murder to be seen about the "Cuttai" or pool, that prisoners were then arrested, that the 1st prisoner, as well as the 2nd, promised to produce the bones which, he said, although he had seen many days back, he did not make any report of it to any body, and that the 1st prisoner produced the bones before Mr. Beeby and deponent.

The 5th witness was present when the 1st prisoner produced the bones.

The 6th witness deposes to his admission before the Head Constable as having concealed the bones, and his promise to produce them.

The 7th witness, brother of the deceased, speaks to the health of the boy, and identifies the small pot, slippers, &c., as belonging to his deceased brother, who, he says, brought food from Palúr to deponent and his brother, 9th witness, at Reddipolliam, and left them to go home afterwards, and that on their return home, the boy was not to be found. The statement of this witness is supported by the 9th witness.

The 8th witness, another brother of the deceased, states that on the information given by the 1st prisoner, he found the baskets, &c., near "Puttiam Cuttai," with which deceased returned from Reddipolliam after giving food to himself and his brother, the 7th and 9th witnesses, that prisoners' comrades must have killed the deceased for his not having given them toddy without money.

The 10th witness states that he told the Village Inspector that Ellan, 13th witness, asked him if he knew any thing touching the murder talked about as having been committed at Palúr.

The 11th witness says that Annu Moodily, a villager, told him to go in company with vettians to look for the corpse alleged to lie near the bridge, and report the matter to the Police. Witness did so, but it was to no purpose.

The 12th witness, Village Inspector, deposes that Prosecutrix complained to him charging prisoners with the murder, that she also alleged having found baskets, &c., near "Puttiam Cuttai," and on a spot pointed out by the 1st prisoner, and that 6th witness told deponent as having heard from the 9th, that there lay a corpse near the channel of "Villiambakkam." Deponent speaks further to the production of human bones by the 1st prisoner. He swears that 18 days previous to the production of bones he visited the spot, wherein they were found, but discovered none of them, and that this was at a time when there was no ground to charge the prisoners.

The 13th witness denies the correctness of the statement of the 10th witness, and the 14th witness, the Zillah Surgeon, swears that the bones and skull before the Court are human, that they belong to a boy aged about 12 years, that the boy must have received a fatal blow on the left side of his head, there being a visible mark of injury done.

The 15th and 16th witnesses, attesting witnesses to 1st prison-

er's declaration before the Sub-Magistrate, depose that it was free and voluntary.

This declaration admits the fact of his having collected the human bones and skull for the purpose of giving information on the subject, and adds, that having been the same day deputed with the remittance of Circar money, to the Talúq by his 1st and 2nd witnesses, and a formal report of the discovery of the bones having been promised him, by the said witnesses, he went to the Talúq, and on his return he was told by the Village Moonsiff that the report had been received. But these assertions are not proved by his witnesses.

There is no evidence against the 2nd and 3rd prisoners, who are released.

The only circumstance which creates suspicion against 1st prisoner is, the admitted fact of the collection of the bones and skull, and their deposit by him in the prickly pear bushes, and his conduct in failing to report the same to the village authorities. But although, according to the evidence of the Zillah Surgeon, the bones and skull belong to a boy aged about 10 or 12 years, there is yet nothing to shew that they are those of the identical boy now missing. That this boy is actually dead is neither certain. However, the discovery of the slippers, &c., of the Prosecutrix's son leads to the supposition that the boy was murdered. Connected with this circumstance the 1st prisoner's conduct subjects him to the strongest suspicion.

He is sentenced to find two sureties each in 50 Rupees for his good conduct, and appearance when required for one year under Clause 1st, Section IV, Regulation II of 1822, and Clause 1st, Section VIII, Regulation VI of 1827.

(Signed) T. ALLAGHIAH,

Principal Sudder Ameen."

The Regulations quoted in the above Proceedings are the following—

"IV. First.—In all cases brought before a Criminal Judge, where adequate proof for conviction of a specific offence, may not be adduced against a prisoner, but he shall appear to be under strong suspicion of any act of criminality, it shall be competent to the Criminal Judge to direct that such prisoner be detained in custody, until he shall give sufficient security for his future good behaviour and appearance, when required.

VIII. First.—Whenever the Magistrates under the authority granted to them by Clause 1st, Section III, Regulation II, 1822, and by Section VI of this Regulation, or the Criminal Judges, under the authority vested in them by Clause 1st, Section IV,

Regulation II, 1822, may require security, they shall, in all cases in which they may deem it safe so to do, provide in their order for the release of the prisoner at the end of a definite period not exceeding twelve months."

This case is interesting in a Medico-legal point of view, as there are several points requiring elucidation. When I was first called to examine and report on the bones above described, I received no particulars of the case whatever. I simply gave in my evidence on what I found, and the inference I was enabled to draw therefrom. The circumstances connected with the case came to my knowledge subsequently. The fracture of the skull is fully presumptive of foul play, for the breach is not of very recent occurrence,* so that it cannot be attributed to any injury received in search caused after the bones. Criminal law requires that the body of the deceased should be discovered to constitute murder. In this case, although the body or portion of the skeleton is produced, it seems to require identification. It is said that the mother of the boy recognized the lock of hair, as that of her son at first sight, but such vague evidence is inadmissible, as there seemed nothing to distinguish it from any other. However, the circumstantial evidence is strong; a boy stated to be of a certain age, disappears from a particular village: shortly afterwards, a skeleton is discovered in the neighbourhood under suspicious circumstances, with further evidence of foul play. That its age corresponds with that of the missing lad, is confirmed by the Medical opinion. Beyond this, there is no evidence, either direct or circumstantial, to shew who the murderer was.

There appears to have been no motive for the murder. The boy was poor, he had neither money nor jewels about him, and his clothes were in rags—unless it be supposed that the murder resulted from the quarrel about toddy, to which allusion is made in the proceedings of the Court. The boy may have been slain accidentally whilst the men were under the influence of toddy, and the body subsequently hidden to conceal crime.

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* In the case of Clarke, who was murdered many years since by Eugene Aram, the traces of the fracture indentation of the temporal bone were plainly distinguished on the exhumation of the skeleton of the deceased thirteen years after the perpetration of the murder.—*Taylor's Medical Jurisprudence,* Sixth Edition, page 384.

A rumour was spread about, to the effect that the missing boy was slain by mistake. It would appear that a brother of his had seduced a girl of caste in the village, and that *he* was the intended victim, but from some, at present unexplained, cause, possibly from a wrong description given to the murderers employed for the purpose, or from a mistake on their part, the younger brother was killed.

In the proceedings of the Court wolves or other carnivorous animals are alluded to. There are no wolves in the district, hyenas are common, and jackalls are plentiful, but an instance has never been known of these animals having attacked a living human being in this district. Hyenas are occasionally, and jackalls daily, seen prowling in the neighbourhood of villages in search of carrion. They are destructive to calves, sheep, goats, &c. Jackalls may possibly have gnawed at the bones and carried away the other parts of the skeleton; the processes of the scapula, vertebræ, &c., found wanting may have been eaten away by these animals. Murder is a crime always looked upon with horror, and it is popularly said that it can never be concealed, but will come out some day—even the natives admit this. From the secrecy with which crime of the kind is committed, the evidence must be mainly circumstantial, and when we come to consider how often the innocent have suffered from purely circumstantial evidence, it is perhaps better that the guilty should occasionally escape rather than the innocent should suffer.

I do not see in cases of this description why the Government should not offer rewards for the apprehension and conviction of the murderer as is done in England.

It is yet to be seen what further steps will be taken by the Mofussil Police to clear up the matter, all we can say for the present is that a murder has been committed.

My obligations are due to A. W. Phillips, Esq., Civil and Sessions Judge, for having allowed me to have a copy of the Proceedings of the Court, as the Principal Sudder Ameen's Court has been abolished since the 1st September 1861.

The following is the result of the examination alluded to in para. 3, p. 230.

TABLE *of 25 Boys supposed to be between* 12 *and* 13 *years of age from inspection of their mouths.*

Number.	Circumference of the head in Inches.	Height in Inches.	Caste.	Teeth present in the mouth.				REMARKS.
				Incisors.	Canines.	Pre-molars.	Molars.	
1	19¼	49⅛	Pariah.	8	4	8	6	The last molars
2	19½	49	Hindoo.	8	4	8	4	have just extrud-
3	19¼	49	Do.	8	4	8	4	ed through the
4	19¾	50⅛	Corava.	8	4	8	4	gum in the up-
5	19¼	45	Do.	8	4	8	4	per jaw only.
6	19¾	49	Hindoo.	8	4	8	4	
7	20	55	Do.	8	4	8	4	
8	20	54½	Do.	8	4	8	4	
9	18¾	53	Brahmin.	8	4	8	4	
10	20	50	Do.	8	4	8	6	The last molars
11	19½	53½	Do.	8	4	8	4	have just extrud-
12	19½	51	Pariah.	8	4	8	4	ed through the
13	20	51½	Brahmin.	8	4	8	4	gum in the up-
14	20	51½	Do.	8	4	8	4	per jaw only.
15	19¾	53	Do.	8	4	8	4	
16	19½	51½	Pariah.	8	4	8	4	
17	20	52½	Hindoo.	8	4	8	4	
18	19¾	52	Christian.	8	4	8	4	
19	20	52	Do.	8	4	8	4	
20	19½	50	Brahmin.	8	4	8	4	
21	19	49	Malabar.	8	4	8	4	
22	19½	50½	Mussulman.	8	4	8	4	
23	19½	50½	Brahmin.	8	4	8	4	
24	19½	48	Hindoo.	8	4	8	4	
25	19½	48	Do.	8	4	8	4	
Total.....	490	1,269						
Average.	19·6	50·76						

NOTE.—This table has been drawn up after the examination of some 360 youths of different castes from three schools at this place. Every care was exercised in the selection that none should be examined but boys who gave evidence from their general appearance, and who seemed to be about 12 years of age, and who had 24 teeth in their mouths with indications of the other 4, or 2nd molars having advanced to the level of the socket by the appearance of the gums at the part. Although all were said to have completed their 12th year, there was no positive evidence except in the case of the 2 Christian lads.

The average of the circumference of the heads of these youths will be about that of the skull under examination, when allowance is made for the skin and other tissues that cover it.

The height arrived at in the table falls short by nearly 2 inches of that given by me with reference to the murdered boy.

Art. XIII.—*A Contribution to the Indian Materia Medica, (Inorganic Substances).* By Edward John Waring, Esq., Physician to His Highness the Rajah of Travancore.

In the prosecution of some investigation into various articles of the Indian Materia Medica derived from the vegetable kingdom, I have incidentally met with notices of some inorganic substances which, from the high esteem in which they are held by the natives, appear to warrant more notice at the hands of European practitioners than has hitherto been accorded to them. The subject of the inorganic articles of the Materia Medica, in use by the Hindús, has received indeed but little attention. Dr. George Heyne, in his valuable "Tracts on India," (4to, Lond., 1814,) notices some of the metallic preparations in use by the Hindús; and Ainslie, in the first Edition of his "Materia Medica of Hindoostan, (Madras, 4to, 1813,) devotes eight pages (52—59) to the same subject, but the accounts in both works are very meagre and unsatisfactory.

In the present paper I venture to lay before the profession some brief notes I have collected on three very interesting articles, viz.: 1. Kala-nimuk, or Black salt; 2. Salajit, or the alum earth of Nepal; and 3. Tabasheer, or Tabashir, the silicious concretion found in the articulations of the bamboo. It may be objected that this last named article belongs more properly to the organic than to the inorganic kingdom of nature, but whilst admitting that as far as its origin is concerned, it is a vegetable product, it appears, considering its physical characters and chemical constitution, that it may be classed amongst the inorganic articles, and without impropriety be considered with the two other inorganic substances with which I have classed it.

Little of novelty or originality will be found in this brief paper, and it is published chiefly with the hope that it may be found an assistance to some future investigation into the articles of the Indian Materia Medica.

1. *Kala-nimuk,* the common Hindústani name of a saline substance, which literally translated signifies *Black salt.* Its other Hindústani names are *Bit-Noben, Pud-loon, Nimuch-seéyah,* and *Sownchurloon.* These three last names occur in the Ulfaz Udwiyeh. (Nos. 409 and 1055.) It

کالا نمک
Kala-nimuk.
بیٹ لوبان
Bit-loban.

is the *Nemuk soonchur*, *Nemuk sia*, or *Bit-loban* of the Taleef Shereef, (p. 167, No. 994). In Persian and Arabic M. S S. it is named *Melk*, *Melk-nuft*, *Melk-aswed*, *Nimue-i-nuft*, *Nimue-i-sed*, and *Nimue-i-hindi*. It is the *Sal naphthicus Indicus* of the Latin versions of the early Arabian and Persian writers, and it is probably the *Sal asphaltites* and *Sal sodomenus* mentioned by Galen and other ancient authors. In some modern works it is called *Salt of Bitumen*.

The substance is met with in most of the bazaars of Northern India. It occurs in large irregular masses, for the most part of a dark brown colour. It has a strong saline taste, communicating a peculiar sensation diffused over the mouth, which is not easily described. At first, the taste is disagreable, but those who are in the habit of using it, declare that it not only becomes pleasant, but is often taken to remove a disagreeable taste from the mouth. When the salt is perfectly dry, it has scarcely any perceptible smell, but when moistened it sends forth a strong smell of sulphuretted hydrogen. It dissolves readily in a small portion of water, forming a solution of a greenish colour, which emits a strong sulphureous smell, resembling bilge water, or the foulest gun-scourings. By exposure to the air, the smell gradually abates, and the greenish tint disappears, the liquor becoming as clear as the purest water; when this has taken place, if the solution has been pretty strong, on pouring out the water, the inside of the vessel in which it was contained is found lined with a crust of a dark brown colour; a phenomenon observed in most sulphur wells; this will be best discovered if the experiment is made in a glass vessel.

The late Dr. John Henderson, of the Bengal Medical Service, to whose excellent paper on the substance in Tilloch's Philosophical Magazine for 1802, (Vol. xiv., p. 206,) we are indebted for much valuable information, mentions some experiments which he instituted, from which he concludes that it is a compound of chloride of sodium and sulphuretted hydrogen. According to an analysis made by Accum in London (Asiat. Researches, xi., p. 193,) it contains black oxide of iron, six grains; sulphur, 14 grains; muriate of lime, 12 grains; chloride of sodium, 440 grains; loss, 4 grains; = 480 grains.

Some doubts appear to be entertained whether it is a natural or manufactured article. The Arabians and Per-

sians, and the Mahomedans in India, have generally considered it a natural production; but even most of those who agree in this opinion admit that there are two kinds, one manufactured and the other natural, the former being simply an imitation of the genuine article. Dr. Henderson, who particularly examines the question, states that he is perfectly convinced that it is an artificial preparation; and he adds that Mr. Robertson, who collected and sent this substance to England, wrote that it was manufactured in the neighbourhood of the city of Agra, where it might be had in any quantity. The Taleef Shereef, indeed, gives a formula for its preparation, which is as follows:—Take two seers of *Anula*, (fruit of Emblica officinalis,) one seer of *Ashkhur*, (refuse or scoriæ of iron?) bruise both, and mix them with 20 seers of rock salt, also bruised; put the whole into a vessel, cover the vessel with a cloth, all except the mouth; lute this cloth well with soft clay, and place it in the sun to dry. When perfectly dry, put it on the fire, (let the mouth of the vessel be rather small.) Keep constantly stirring it with an iron spatula or spoon; when well boiled and mixed, take it off and allow it to cool; then add *Tinkhar* (Borax or Tincal,) *Jawakhar*, (an impure kind of Borax) *Tilkh*, (Talc?) *Kibreeth*, (Sulphur,) sweet *salt*, and *soot*, equal parts; mix all well together, and add a quantity of salt water, then boil the whole down and strain slowly by drops, then boil the clear fluid till crystallization takes place.

Its medicinal uses are most numerous; indeed it is said by Dr. Henderson to be more extensively used in Hindústan than any other article of the Materia Medica. It is held in high esteem in various forms of paralysis, especially in that in which the organs of speech are affected. It is also much used in various cutaneous affections, in worms, chronic rheumatism, indigestion, want of appetite, &c., in short, it is considered the grand restorative in all long standing and debilitating diseases. In chronic affections of the liver and spleen, especially in enlargements of the latter organ, it is esteemed as a remedy of great value, and Dr. Henderson mentions that cases which had resisted the most powerful remedies for years, have been known frequently to give way to this agent. Twining (Dis. of Bengal, i., p. 507,) advises its administration in doses of grs. x., with ʒ ss. of the black Myrobalan, every morning, in the intervals between the employment of his famous spleen mixture. It is likewise extensively used by the native farriers; indeed

it forms the basis of those compositions called *mossals* which the natives in charge of horses, elephants, camels, and other animals, consider it indispensable to administer once a month, in order to keep the animals in good condition. After its administration they give the animals a plentiful supply of water, by which means a copious disengagement of sulphuretted hydrogen gas is obtained. The ordinary dose for an adult man is from grs. x. to grs. xv.

It may not be uninteresting in this place to enumerate a few other medicinal salts which form part of the Indian Materia Medica—a *Nimuk chitchera*, (Taleef Shereef, p. 167, No. 993). This is simply the purified ashes of the *Chitchera* or *Achyranthes aspera*, which, it is well known, abounds in potash, so much so indeed that its Sanscrit name, *Apamarga*, signifies *Washerman*, from its alkaline ashes being used for washing or cleaning purposes. The ashes obtained by incineration are repeatedly washed and strained, and then boiled till crystallization is effected. Its medicinal uses are not given in the Taleef Shereef.

β. *Nimuk Kutchloon* (Taleef Shereef, p. 168, No. 995) called *Nimuk Shee'-shar* in the Ulfaz Udwiyeh, (No. 1281) translated in the former work *Salt of Glass* and *Froth of Glass*, in the latter "*The dross of Glass.*" It is probably glass submitted to great heat in a closed vessel, but no formula for its preparation is given in either of the two works quoted. It is said to create appetite and to purify the blood.

γ. *Nimuk Udhbidh.* This is a kind of *Black Salt (Kala Nimuk)* said to purify the blood, and is externally applied to expel wind. (Taleef Shereef, p. 168, No. 996.)

δ. *Nimuk Sung, Sindah loon*, (Ulfaz Udwiyeh, No. 1065,) *Nimuk Sœndha*, (Taleef Shereef, p. 168, No. 997,) it is sometimes called *Lahori Nimuk.* Its Tamul name is *Indúpú.* This is simply *Rock Salt*, which is said by Ainslie (Mat. Med. of Hind., Ed. 1813, p. 40) to be imported from Thibet, where, according to Turner, (Embassy to Tishoo-Lama, p. 406) it is found in a state of great purity.

ε. *Nimuk Derya* and *Nimuk Shoor*, otherwise called respectively *Semunder loon* and *Káree loon.* (Ulfaz Udwiyeh, No. 1039, and 1318,) is simply Sea Salt, which has many medicinal uses amongst the Hindús and Mahomedans.

2. *Salajit* or *Alum Earth of Nepal.* It is the *Sa-la-get* of the Ulfaz Udwiyeh, (No. 1020,) and the *Sillajeet* or *Silladeet* of the Taleef Shereef, (p. 95, No. 577.) Honigberger (Thirty-five years in the East, ii., p. 339,) mentions it briefly under the designation of *Asphalatum Selajit*, or *Asphalatum Punjabinum.* Of this substance there are two varieties in use amongst the natives of Upper India; both are products of Nepal, and they appear to differ from one another solely in their degree of purity. The first variety is called simply *Salajit* or *Pathar ka Pagseo*, or *Puseo;* (sweat) the second is distinguished by the prefix of *Kala* (black,) i. e., *Kala Salajit* or *Black Salajit.* It is this second variety which we now propose to consider. It is a black bituminous substance, said to be exuded from rocks, and resembles in external characters the bituminous alum called shale, found in coal mines in England and elsewhere, but there is much vegetable matter in it, and according to the opinion of Dr. Campbell, to whose paper on this subject in the 1st Volume of the Journal of the Asiatic Society of Bengal, we are much indebted, it is probably a vegetable production—i. e., of vegetable origin.

سیلا جیت

Sillajeet or Silajit.

The Alum earth of Nepal.

It occurs in small light lumps, externally of a brownish white colour, easily friable, and internally presenting a semi-crystalline fracture, slightly fibrous, with a lustre resembling asbestos; it is porous, containing in its central parts, small cavities lined with scarcely perceptible needle-like crystals. Placed in contact with the tongue it adheres slightly. Its taste is acidulous and saline. It is soluble in twice its weight of distilled water. A specimen examined chemically by Mr. Stevenson, (Journ. Asiat. Soc. of Bengal, Vol. i.,) was found to contain

Sulphate of Alum.....	95·0
Peroxide of Iron.....	3·0
Insoluble matter (silex).....	1·0
Loss.....	1·0 = 100

The sample thus examined appears to have been peculiarly pure; 66 per cent. of alum being, according to Dr. Campbell, about the average. So highly is it valued as a medicine in some parts of Northern India, that it sells for its weight in silver; yet it is to be procured in abundance in many parts of Nepal.

Its medical virtues are thus summed up by Dr. Campbell. In India it is in much greater repute than in the land of its production; and its virtues in some affections are said to be unequalled. Internally, it is given as a sovereign remedy in gonorrhœa, in gleet, gravel, stone in the bladder, seminal weakness, and sometimes in alvine fluxes. Its dose is for an adult 10 grains, finely powdered and given in ghee. It is also an ingredient in several of the compound medicines of the natives, and is said to be (probably with justice) an admirable remedy in gravel, as well as in diarrhœa. Exernally, it is chiefly employed in powder, as a styptic in recent wounds, and in solution, to bruises and sprains, as well as a wash for foul ulcers. In severe cases of falls and bruises, it is internally administered, apparently without any better reason than the one stated by themselves; viz., that its being good for a bruised leg "ought to make it useful to the internals of a hurt man." It is much prized by old women, as a remedy in infantile diseases, such as slight fever, diarrhœa, and bronchitis; and few faqueers who dispense health to the body are without this mineral.

It may not be uninteresting to some readers to see in what light the natives themselves regard this substance; hence I am induced to insert at length, even at the risk of being thought prolix, the following passages from the Taleef Shereef (op. cit.)

Sillajeet also *Silladeet*,* pungent, bitter, and stimulating, cures seminal weakness, piles from cold, juzam (leprosy), dropsy, marasmus, difficulty of breathing, tabes, idiotism, swellings of the body, disorders of mucus and blood. It is vermifuge, lithontriptic, and otherwise generally useful. It is one of the most powerful remedies; is stronger than any other ingredient in whatever formula it may form a part, and it increases the effects of all others; it is the favorite medicine of all Indian physicians.

Sut Sillajeet is the strongest, for this means *Sillajeet* in a refined state. I have found it excellent in gonorrhœa, and for thickening the seminal fluid; also for strengthen-

* I have here purposely omitted the few following words which occur in the original. "*Styrax or Storax, a balsam,*" because it is likely to create confusion. This substance has nothing to do with Storax, the Hindústani name of which is *Siláruss*, and the subsequent remarks in the passage above quoted serve to shew that it is perfectly distinct from the balsamic substance known by the name of Storax or Styrax.

ing the kidneys and urinary bladder. The mode of preparing it, is as follows:

"The *Sillajeet* is dissolved in water and placed in the sun in a new earthen vessel till it becomes thick, and its color assumes a reddish or yellowish hue; then must be taken from the surface as much as is clean, and preserved in another new vessel; this too is placed in the sun, well protected from dust, till it becomes dry. This is the *Sut Sillajeet*, and what remains in the first vessel is again purified in the same manner for three different times, and each time the pure drug is dried as above. It is easily purified by fire, and more quickly; but this is much to be preferred. It is brought from the hills ready prepared."

The following passage from another Hindustani work, entitled Maadentezerrubad (l. c.) may also be cited. "*Sillajeet* is the urine of the hill wild goat, which, when the animal is rutting, is discharged on the stones and evaporated by the sun's heat. It is found in small quantities, of a black color. In the opinion of Indian physicians, it is useful in all kinds of seminal weakness, in swellings, in juzam, epilepsy, diabetes, stone in the bladder, and in gravel. The *Sillajeet* is often mixed with lime, but the adulteration is discovered by the change of color. Some have said that it is the urine of the wild ass found as above. The purified kind is the best. In juzam, if eaten for forty days, it is a cure, and even in the last stages of the disease, it is beneficial. It loosens wind and phlegm."

Has this substance any analogy with Hyraceum lately discovered at the Cape of Good Hope?

3. The last article we propose to notice in this place is *Tabasheer* or *Tabashir*, the silicious concretion found in the articulations of the bamboo, hence its Tamul and Telugu names, *Mungil-oopoo*, (Tam.) and *Vedroopaloo*. (Tel.) It is the *Bans-lowchun* of the Ulfaz Udwyeh, (No, 546,) and the *Bunslochun* of the Taleef Shereef (p. 43, No. 210) Its other Oriental names are *Bansk*, (Beng.) *Tabasheer*. (Pers. and Hind.) *Oonamakoo*, and *Una-lee*, (Cing.) *Wahtaiga-kia-auk*, (Burm.) *Poon-mye-pige*, (Siam.) *Chuh-wang*, (Chin.) *Tabashri*. (Turk.) It was first fully described by Dr. Patrick Russell, in the 80th Vol. of the Philosophical Transactions. Dr. Brewster (Edin. Journ. of Science, viii.,

تبا شير
Tabasheer.

بنسلو چون
Bans-lo-chun.

p. 286,) quotes the following interesting passage from a letter on this substance by the late Proff H. H. Wilson.

"Bamboo manna," he remarks, "is known in the Materia Medica of the Hindús by a variety of appellations, implying simply its being the produce of the bamboo, or denominating it from some of its sensible properties, the *milk*, *sugar*, or *camphor* of bamboo. The name in ordinary use is *Bansa-rochunu*, (the ornament of the bamboo,) corrupted in the vernacular dialect to *Bunslochan*. The name in use amongst the Mahomedans of India is *Tabasheer*, an Arabic word, explained by Meninski, *Liquor specie sacchari concretus in arundine Indica Majore, et quasi petrefactus; in India Saccar Bambu* (sugar of the Bamboo) *dicitur, pro quo cineres nodorum aut radicum vulgo distrahi solent.*

According to the Sanscrit works on medicine, such as the Bhava Prakas, and Raja Nighant, the Bunslochan is of a slightly austere, astringent, and sweetish taste. It possesses cooling and demulcent properties, allays thirst and fever, and relieves cough and difficult breathing. It sweetens the humours, and is serviceable in jaundice and leprosy. Its chief virtues, however, and those for which it is mostly esteemed, are supposed to be of a restorative nature and it is highly prized as an aphrodisiac.

In the markets of Calcutta it is found in three states. The best is termed *Patnai*, being brought from Patna, and is in small compact pieces of a milky white colour, having the lustre of enamel, and being semitransparent. It is termed *Nilkunthi*, from its bluish tinge, and *Paharika*, from its being brought from the *Pahar*, or hills to the westward of Behar. The second sort is of a dead white colour, without lustre or transparency, and much more friable than the preceding. It is termed *Chheluta*, the Bengali corruption of Sylhet apparently, whence, it is well known that, this substance is procured. The third and worst kind is termed *Desi*, or country; it is white, with a yellowish tinge, less friable than the second sort, but without lustre or transparency. The last is said to be soluble in water; the two first are not. An artificial bunslochan is also manufactured from chalk.

Dr. Brewster, who formed one of the largest and best collection of specimens of tabasheer ever made by a single individual, describes four varieties of this substance.

1. The finest variety, which is also the rarest, is of a delicate azure blue colour by reflected light, and of a faint

yellowish blue hue by transmitted light. It is easily crushed between the fingers, and it has an aërial and substantial texture which we look for in vain in any other solid. It has its counterpart in the mineral kingdom in some of the finer semi-opals, which approach to the precious varieties.

2. Another variety of tabasheer reflects a yellow tint, like that of molybdate of lead, and transmits a light of reddish yellow tinge. It resembles greatly some of the yellow semi-opals.

3. A third variety is nearly white, with a slight tinge of blue, and is translucent at the edges.

4 A fourth variety resembles chalk, and is perfectly opaque. Although these are the forms in which tabasheer generally occurs, yet several peculiarities of structure present themselves in the examination of numerous specimens. In some was observed a layer; exactly like jasper, and in some specimens the surface was covered with a brilliant enamel, possessing all the lustre of pure quartz.

The chemical composition of tabasheer has been examined by several chemists. That which Dr. Russell brought from India in 1790, consisted, according to Mr. Macie, (Phil. Trans. 1791,) of pure siliceous earth; another specimen brought from South America by Humboldt and Bonpland, was found by Fourcroy and Vaeuelin (Mem. de l' Institute, 1806, Vol. vi., p. 382,) to contain only 70 per cent. of silica, the remaining 30 consisting of potash, lime, water, and a small quantity of vegetable matter. This very closely agrees with other analyses made by Dr. E. Turner (Edin. Journ. of Sci. 1828, Vol. vii., p. 335) and by John, (Ecrit. Chin. iii., p. 1,) though the latter detected in the specimens he examined traces of alum and oxide of iron.

In addition to the medicinal uses mentioned above, it may be added that it is more esteemed by the Mahomedans than by the Hindús; indeed the latter use it very sparingly, whilst the Mahomedan doctors regard it as a powerful aphrodisiac, and employ it in paralysis and other nervous affections (Roxb. Cor. Pl., Vol. i., p. 57.) In the Taleef Shereef, it is described as allaying thirst, removing hectic fever and dyspnœa, as being serviceable in bilious disorders, foulness of blood, and jaundice. Dr. Irvine (Mat. Med. of Patna, p. 13,) places the dose at grs. v—xx. From its chemical composition it may, however, be concluded that it possesses little or no energetic properties.

One of the most remarkable properties of tabasheer

which remains to be mentioned, observes Dr, Brewster, (op. cit., p. 292) is its low refractive power, which is lower than that of any other body, whether solid or fluid, as will be seen from the following table.

Air	1,000	Flint Glass	1,600
Tabasheer	1,111	Oil of Cassia	1,641
Water	1,336	Diamond	2,470

Hence it appears that the refractive power of tabasheer is actually nearer that of air than that of water.

Art. XIV.—*The Pathology and Treatment of Exostosis.* By Thomas Lowe, Medical Officer, Madras Sappers and Miners.

We are, perhaps, more ignorant of the causes and development of osseous and osteoid tumours than of the causes and course of any other diseases coming under the notice of the Physician and Surgeon.

Samuel Cooper says,* "the causes of exostosis do not seem to be at all understood," and again, "our ignorance of the pathology of exostoses, particularly heir causes, accounts for the imperfection of our treatment of them."

These morbid productions, however, for this very reason, become subjects of deep interest to the pathological student, as they assume characteristics in nowise appertaining to true osseous structure, and involve in their abnormal development (by combination and absorption) contiguous structures, oftentimes of totally foreign constitution to their own primary elements.

Diseases of the body, structures of the body (excluding such as arise from the poison of syphilis—nodes, ostitis and periostitis, necrosis and exfoliation) assume such varied forms that the Surgeon not unfrequently finds it to be a matter of no small difficulty positively to decide whether the growth be what is denominated malignant, and therefore liable speedily to reappear after extirpation, or simply of the so-called non-malignant type, and, perhaps, capable of thorough and effectual removal from the body.

Can we explain why one tumour should be purely an excessive development of bony tissue, a second half-bone half-flesh, a third bony and brain-like, a fourth bone and

* Vide Surgical Dictionary, Art. Exostosis, p. 468.

cartilage; why one should essentially indicate a depravity of constitutional elements from which nothing short of death can bring relief, and why another should, for the present, only point to what is apparently simply a vice of local structure, and which it is in the power of the Surgeon at such period to subdue and remove?

Although we cannot always draw the definite line of diagnosis of these various diseases of the bones, nevertheless, happily, we have certain broad marks before us at particular periods of their existence, which enable us in general to arrive at something like a sound conclusion in the majority of instances presented to our notice. Indeed, we cannot be far out of the right path of procedure if we bear in mind the directions made clear for us by the labours of Baron, Cooper, Brodie, Stanley, Paget, and a host of other eminent men, and study the picture before us with care.

The arrangement of osseous tumours into malignant, semi-malignant and benign—an arrangement which nature herself does not appear to have very plainly indicated—is, perhaps, as close an approximation to the real nature of such things as we are enabled to make, for it must be admitted that all such growths are, to a certain extent, constitutional, whatever might have been the immediately exciting cause of their local development, and that all may at certain periods and in certain constitutions, however benign in the beginning, under peculiar conditions, pass the line of apparent harmlessness, and verge into the character of undoubted malignancy.

To this elucidation—sometimes difficult enough—the Surgeon has to bring his experience and knowledge to aid him in a diagnosis for a prognostication of future good or evil.

Enormity of growth, although formidable enough to the sufferers, is *in itself* of but secondary import to the Surgeon, it is the complications of structural and functional derangements combined—such as pressure on a large arterial or nervous trunk, in growth upon important joints or into shut cavities, as into the cranium and chest—that renders the magnitude of an osseous tumour dangerous, supposing nothing of a really malignant nature presents itself; while oftentimes a small well-defined tumour is but the exuberant expression of a malignant state of the whole constitution, and a pathognomonic sign that the patient's days are numbered.

Malignant tumours of bones are usually of rapid growth and very painful, the pain being characterized as shooting, lancinating and pulsatory; they cause sleepless nights; they rapidly implicate the surrounding structures; they are sometimes full to repletion of arterial and venous blood; they involve the integuments; they ulcerate and frequently give issue to sanious and offensive grumous matter; the patient becomes cachectic, emaciated and anxious; he looks like one without the hope of joy or life, and is painfully solicitous of relief.

Non-malignant or benign tumours of bones, on the other hand, are usually of slow growth; they are painless, unless they press upon one or other of the neighbouring nerves; they do not interfere with the usual avocations of life until they have attained some magnitude; *the skin covering the tumours is readily moved over them;* ulceration on the surface and bloody oozing is seldom witnessed; the countenance is clear and bright; the spirits are not depressed, and the patient is full of hope. Such are the usual signs nature brings before us in a malignant, semi-malignant or benign tumour, and remembering such indices, we have much at our command to assist us in delivering a prognosis and in guiding us in the treatment of such cases as may come under our care.

In osseous tumours springing from the bones themselves we have those consisting of bony tissue only—a kind of hypertrophy or redundance of bone growth—and those which partake partly of the character of bone itself, and partly of fibrous, fibro-plastic, cartilaginous and sarcomatous elements, variously commingled in relative proportions and denominated according to the elements which appears mostly to predominate.

In considering the nature of these tumours we need not trouble ourselves to decide as to whether they are what have been classed as *true* and *false* exostoses. The very fact of such adventitious growths springing from and out of bones, whatever ultimate complication of structure may present itself, would be sufficient for our purpose, for whether such growth prove to be purely osseous matter intermixed with fibrine, cartilage, medullary or sarcomatous depositions, they are essentially *true* outgrowing manifestations of disease of bone tissue.

Let us here pause to consider the constitution of a bone,

as we may, perhaps, glean from it some little information that may assist us in our pathological labours.

First, then, the chemical analysis of bone affords the following results. According to Fourcroy and Vauquelin:

Animal matter	51·
Phosphate of Lime	37·7
Carbonate of Lime	10·
Phosphate of Magnesia	1·3
	100·0

Berzelius records the following:

Cartilage	32·17
Blood-vessels	1·13
Fluate of Lime	2·
Phosphate of Lime	51·04
Carbonate of Lime	11·30
Phosphate of Magnesia	1·16
Soda, Muriate of Soda, and Water	1·20
	100·0

But more recent and careful chemical analysis of bone is thus recorded by Marchand, Lehmann and Von Bibra.

Organic matter.	*Marchand.*	*Lehmann.*
Cartilage insoluble in Hydrochloric Acid.	27·23	32·56
Cartilage soluble in do.	5·02	
Vessels	1·01	
Inorganic matter.		
Phosphate of Lime	52·26	54·61
Fluoride of Calcium	1·	
Carbonate of Lime	10·21	9·41
Phosphate of Magnesia	1·05	1·07
Soda	0·92	1·11
Chloride of Sodium	0·25	0·18
Oxide of Iron, Manganese, and loss	1·05	·86
	100·00	100·00

Von Bibra's analyses are thus recorded by Dr. Carpenter.*

* Vide "Principles of Human Physiology," 4th Ed., p. 260.

I select three analyses out of seven as sufficient for our purpose.

Organic matter.	*Femur.*	*Scapula.*	*Vertebra.*
Cartilage	29·54	32·90	43·44.
Fat	1·82	1·73	2·31
Inorganic matter.			
Phosphate of Lime with a little Fluoride of Calcium.	57·42	54·75	44·28
Carbonate of Lime	8·92	8·58	8·00
Phosphate of Magnesia	1·70	1·53	1·44
Soluble Salts	0·60	0·51	0·53
	100·00	100·00	100·00

Thus we perceive, save in the analysis of Fourcroy and Vauquelin, that animal matter forms from one-third to one-half of the whole man, and that the remaining two-thirds or half are mainly composed of inorganic matters—lime in the state of Phosphate and Chloride united with a small percentage of Magnesian and Soda salts, Manganese and Iron in a state of oxidation.

Now let us briefly notice the physical composition as revealed to us by the aid of the microscope, and observe how these elements are commingled, adverting as we pass to one or two physiological facts which mainly bear on pathological results.

If, then, we examine a long bone by the low powers of a microscope, we readily perceive its laminated texture surrounding the medullary canal, these laminæ bring parallel to the surface in flat bones. In the extremities of long bones, and between the external plates of flat bones, we find the *cancelli—lined by a very vascular membrane,* which communicate with the medullary canal of the bone. Every part of the bone is traversed by "Haversian" canals, which canals communicate with each other and with the main or medullary canal—*all of which are lined with a continuation of the medullary membrane.* In each of these canals is a minute vessel and a store of fatty matter.

Again, if a section of bone be further magnified, we observe in the concentric laminæ around the Haversian canals, cavities—lacunæ of an oval shape—which cavities, according to Quekett, are characteristic of osseous tissue. From

these lacunæ or cavities radiate an infinity of smaller cavities—canaliculi—communicating with each other in the remotest parts of the osseous substance, and with the Haversian canals.

Now, these canaliculi are so small, varying from 1,14,000th to 1,60,000th of an inch in size, that blood corpuscles, which are about 13,200th of an inch in size, could not possibly enter them, but to these microscopic channels alone can we attribute the growth and the repair of bone. The nutrient osseous materials supplied by the medullary and sub-periosteal capillaries are drawn through these canals to the remotest laminæ of the bony structure; and then, added to these innumerable channels, for nutrition, we have the investing nutrient membrane, the periosteum, and its subjacent membrane, also sending numerous vessels into the bone.

From the medullary canal and periosteum the truly osseous texture derives its lymphatic and nervous system. The existence of nerves in bone is rendered painfully apparent in disease and in the operating theatre, for the moment the saw touches the medulla, and while passing through it, the patient screams, and, even under anæsthetics, evinces acute appreciation of pain.

Now, the above named lacunæ and canaliculi would appear to be nothing more than passages left between the reticulations of the fibres of the animal basis of the bone—the *glutin,* around which the calcareous matter is successively deposited intimately united with the animal matter in the same way as all earthy components are beautifully blended in the vegetable structure of a leaf.

The above résumé of the physical constitution of bony tissue will serve our purpose. Let us briefly recapitulate.

There are:—

1st. The medullary canal lined with its highly sensitive nervo-vascular membrane, connected with which are—

2nd. The Haversian canals and canaliculi, also lined with the nervo-vascular membrane containing capillaries, lymphatics nerves and fatty granules;

3rd. Concentric lamellæ of animal and earthy matter, intimately commingled, surrounding these Haversian canals, in which we find.

4th. The lacunæ communicating with the canaliculi.

5th. The reticulated mass of *glutin* surrounded everywhere by earthy matter, and

6th. The sub-periosteal membrane and periosteum investing the whole structure.

We need not in this paper stay to consider the exceedingly interesting processes of the development and repair of bone; the primary cartilaginous basis of all long bones; the change which takes place in the cartilaginous matrix prior to its conversion into bone; the first deposition of ossific matter in the areolar tissue surrounding the cartilaginous lines; the formation of the cancelli and extension of blood vessels therein; the displacement of cartilaginous cells by cells containing fatty granules; the increasing density of bone by fresh depositions of ossific matter in the interior; the gradual contraction of the original cancelli by ossific matter in the Haversian canals, and the ultimate formation of the lacunæ in the earthy deposits; these matters are dealt with lucidly by Todd and Bowman, Sharpy, Carpenter and others, and these authors show us that these complicated processes have their origin in one simple system which needs but a slight modification—congenital or accidental—to alter it in order that a diseased condition may replace original perfection.

One thing, however, we must note, namely, *the very rapid and perpetual absorption carried on in the substance of a healthy growing bone.*

So long as a cylindrical bone grows, so long does the diametric deposition of new matter on the outside of the shaft and the absorption of old matter within continue. The immediate channel for this external increment lies, according to Dr. Sharpy,* in the sub-periosteal membrane (not in a cartilaginous blastema) of *glutinous* base; while the increase of the *length* of the bone is owing to the growth of the cartilage.

In *healthy bone there is no interstitial increase* (in diseased bone there is) and here this tissue differs from all other.

"By the admirable system of prolongations, however says Dr. Carpenter,† by which the vascular membrane is conveyed into its intimate substance, we find this method of superficial deposit adapted to the consolidation of parts which are at first sketched out (as it were) by a slight osseous reticulation; whilst by the facility with which the bony matter is absorbed in the internal part of the shaft, at

* Vide "Quain's Elements of Anatomy"—5th Ed., p 142.

† Vide "Prin. of Human Physiology," 4th Ed. 1853, p. 266.

the same time that it is being deposited on its exterior, the same effect is produced, as if the whole cylinders could enlarge uniformly by a proper interstitial growth, in the manner of the softer tissues."

Thus we have brought forward sufficient for our purpose to show what are the physical and chemical components of healthy bone tissue; now let us enquire in what manner diseased bone differs from healthy bone, and endeavour to throw some light on this obscure pathological subject.

In most adventitious bone-growths the ossific deposit is observed to take place primarily either in distinct granules which little by little become one aggregate whole, or in the shape of fibrous spiculæ becoming solidified gradually into one firm bony substance.

Now, if we make a fine section of a purely osseous tumour for microscopic purposes in the manner recommended by Quekett or Carpenter,* we shall at once see how these adventitious growths differ from healthy bone tissue. We observe that there is an absence of the true Haversian canals with their concentric lamellæ; the lacunæ and canaliculi are either absent or imperfectly organised, or break into each other to form irregular cavities of various dimensions.

These cavities are sometimes numerous enough, but they are not lacunæ, they are the old cartilage cells or their nuclei, the intervening areolar substance being calcified. Then these cells are often seen to be *stellate*, while *the true lacunæ are oval* or *lenticular in form.* Sometimes, however, an osseous tumour presents a very perfect appearance, but this is a rare exception, and even in these cases the sub-periosteal indusium of the growth is enlarged, thickened, and altered in colour and arrangement, and the fatty granules, which are often in excessive quantity, are commingled with the animal and earthy matters without order. This was exactly the constitution of an osseous tumour removed by me from the scapula of a boy in December 1861, which tumour is now in the pathological museum of the Madras Medical College. Such tumours appear to be the result of a redundant deposition of osseous matter, having neither the cartilaginous nor sarcomatous elements of the bone in excess, but having the quantity and quality of the normal structures changed. This condition, however, may

* Vide the Works on the Miscroscope.

be easily changed if one or other of the primary elements of bone be the seat of the original diseased action, so that we may have a fibro-cartilaginous, a fibro-plastic, or osteo-sarcomatous development, each of which ultimately differs as widely from true bone, as bone itself differs from muscular tissue, and each of which assumes a definite pathological feature.

The healthy integrity of bone tissue like every other tissue in the body, depends upon the constant absorption of materials no longer needed, and upon as constant a renewal of nutrient matters in their places: *in a word, upon an equilibrium of consumption and supply.*

Now, let us suppose that the quantity and quality of any one of the above six elements to be changed; the soft parts in the medullary and Haversian canals to have lost their normal powers of absorption, deposition, appropriation; or that more earthy or calcareous matter is deposited from the fluids than can afterwards be carried away when no longer needed, and that this deposit of solids continues, what ought we to expect from such a condition but a redundant growth or osseous tumour? Again, let us suppose that the absorbents of a bone have assumed an undue power, and that the membranous and cartilaginous tissues appropriate an excess of their specific elements from the fluids carried to them, what ought we to expect? An adventitious and, perhaps, rapid growth from the bone having all the characterestics of a fibro-cartilaginous or osteo-sarcomatous tumour in which there will be a minimum of earthy matter. Let us now suppose the lining membrane of medullary and Haversian canals to be the original seat of the lesion or afterwards to become implicated with the above condition, what is there to prevent a redundant development of the *now unsupported capullary system* in the form of a bleeding, fungoid, highly sensitive, painful mass? And what is there to hinder the busy lymphatics from carrying back the seeds of, perhaps, a local disease into the general current of the circulation, and thus perpetuating a local vice by contamination of the constitution from these morbid local fluids? Or, again, supposing the periosteum and its subjacent membrane—no matter whether by accident or not—to suffer similar derangement in their minute and important system of capillaries and absorbents, there is nothing that should prevent an exostosis (and this we frequently see in syphilis) or its after development

into one or other of the more complicated forms of osseous tumours.

Indeed, it appears to me that whatever may originally destroy or alter this beautiful balance of consumption and supply or deprive the microscopic agents of absorption of their wonted office, either by induced atony (which we see followed by dropsy elsewhere on the body) or under action, is sufficient to furnish a development of these abnormal, osseous, and semi-osseous growths.

If we bear in mind the chemical and physiological constitution of bone—briefly touched upon in this paper—we shall, I trust, find ourselves in a position to explain in some measure the condition of the pathological formations revealed in these diseases; we shall at least be in a position to give a reason why one element of disease is seen to preponderate over another.

If we confess our inability to solve the mystery of the primary transformations and ultimate dissimilitude of the component parts to their original, we have, I think, gained something from the study of the physiological dispositions which, at all events, will enable us to appreciate the importance of the pathological changes presented to us when a sufferer seeks relief at our hands; and bearing these facts in memory we possess valuable marks for our guidance.

I am inclined to the belief that almost all osseous tumors (exostoses) are of a purely *local* origin, notwithstanding that their growth and changes become constitutional effects, and to this belief most modern Surgeons appear to incline, inasmuch as we invariably find removal of all such growths at an early period recommended, to obviate, if possible, constitutional contamination.

Most people at some time or other of their lives have received a blow, a kick, or injury in a fall. The bones of the face and head, the collar-bones, the bones of the hands and of the legs usually receive the brunt of all such injuries, and it is upon such parts that osseous tumours *most frequently* manifest themselves. The injury and date of a blow may have long been forgotten, but how know we not that the seeds of such present disease may not have been long ago sown in some athletic display or unlucky mêlée of youth? There must be a cause for every such diseased growth, and if we *can* trace it to a local origin, so much the more need we rejoice; if, on the other hand, it be apparent that the disease is but an outward manifestation of

a radically disordered state of the system, we have the satisfaction of knowing this and of shaping our treatment accordingly. I believe that all cases of osteo-sarcoma will be found to have had their origin in an inflammation of the medullary membrane of the affected bone. In the lower and upper jaws we may generally trace it to the presence of a decayed tooth or to the rude manipulations suffered in endeavours to extract a tooth. If in a long bone we can diagnose such a condition, and believe matter to be pent up in the shaft, we trephine at the painful spot, let out the matter—as I have seen done on several occasions—and cure the disease; but if this happy diagnosis and treatment be not effected, what can take place in such unyielding parts, but continued structural change and exosteal development?

I believe that fibro-cartilaginous tumours originate in irritation or sub-acute inflammation of the periosteum and subperiosteal membrane, in which there occurs a redundant deposition of cartilaginous material, while the secretion of earthy matter is retarded or directed into new and diseased channels—layer after layer being spread out upon various outgrowing points of cartilage, giving to the tumour its shell-like form.

These tumours are indolent in growth, and at first hard and painless.

When an exostosis displays more of the sarcomatous, gelatinous, and fungoid character, we may trace its development to an excessive action and inflammatory condition of the medullary membrane and net-work of vessels, and to a change in the fatty granules filling the cavities, while the deposition of calcarious elements is arrested or exists in a minimum degree. In all these cases the tumours are more or less divided into cells by septa of a fibro-cartilaginous character, each cell being filled with fleshy, gelatinous and grumous fluids.

Although all these tumours appear to have a distinguishing origin, and although each of them may at one or other period be classed according to the prevailing element, yet there does not appear to be one of these exostosis which may not ultimately, under certain conditions, assume one or other of the characters which all more or less possess.

We have been told that hydatids in the cancellous structure of a bone (we need not enquire how they got there) will produce a formidable state of disease,* but the pre-

* Vide "Surgical Essays," by Sir A. Cooper, Part I., page 163.

sence of hydatids in bones we cannot suppose to be of frequent occurrence. Indeed, may not the appearance of hydatids have been one of the many results of the morbid changes which the elements had undergone?

Let us now proceed to the consideration of the best treatment of these adventitious growths. Ought we to endeavour to reduce these tumours by therapeutic means or by deligation of vessels proceeding to them prior to any interference with the knife for their extirpation?

Among the many remedies which have claimed the attention of the profession for the cure of bony tumours, we find that mercury and opium—alone or combined—iodine, belladonna, hemlock, and hyoscyamus, exhibited internally and applied externally; hydrochloric and acetic acids, solution of potash, and the never failing sarsaparilla, pressure, leeching, blistering, setons, and the actual cautery, have been individually lauded as potent weapons against these formidable growths. We can easily understand how opium, belladonna, and sedatives in general are useful in removing and lulling severe local *pains* and constitutional irritability; but how local and general blood-letting ever found their advocates is more difficult of solution.

Acids were given with a view of dissolving the earthy components, imagined to be too copiously formed in the system! Potash and sarsaparilla, where a scrofulous taint was believed to predominate. Sir A. Cooper* thought bichloride of mercury with sarsaparilla the best remedy; he also recommended the use of blisters to be followed by mercurial and savine dressings, doubtless arguing from the results seen to follow this treatment of syphilitic nodes and necroses. Upon what grounds the actual cautery and caustics—those relics of barbarous surgery—were advocated in these diseases we need not pause to enquire. The application of iodine externally, and the exhibition of its alkaline compound (with its inseparable vehicle sarza) internally, appear to have held their ground in the long battle of therapeutic supercession, for we still see them recommended in these diseases to this very day, and, perhaps, if there be any remedy capable of arresting them, iodine is the only one worth relying on, but even this I believe to be doubtful. If ever of any service in such case, the benefit obtained is so tantalizingly trivial, that we are constrained ultimately

* Vide Op. cit. Part I, p. 169.

to doubt its vaunted virtues. Deligation of vessels has often enough been tried, but never, so far as I can learn, has been attended with success.

M. Boyer, no mean authority upon this subject, and often quoted and referred to by Samuel Cooper, was long ago of opinion that the resolution of such tumours was next to impossible, and that the most that could be expected was slight diminution or temporary cessation of formative action. I have seen many such tumours therapeutically treated, but I must confess I never saw any benefit therefrom; on the other hand I believe the disease was always increased.

Let us hear what Fergusson has to say upon this subject. He says, speaking generally of tumours,* "whenever such measures can be resorted to as may be supposed to cause absorption, they should have a fair trial; but when such plans fail, *as they will almost invariably do,* and if there is reason to suppose that the further continuance of the disease will be detrimental to health, I deem the practitioner highly culpable who still tampers with it and persists in placing faith in either local applications or constitutional remedies." An opinion in which I am convinced every experienced Surgeon will coincide. Speaking of his experience of the use of *Iodine,* he remarks, "I am free to confess, and deem it my duty to do so, that I have never in one single instance seen an organized adventitious growth removed by it." With regard to leeching, counter-irritation, and deligation of blood-vessels leading to these growths, he gives us no more encouragement. Syme, Liston, Lizars, Miller, and other modern surgical authorities all agree in pronouncing upon the uselessness of all such proceedings. The first question, then asked by me upon therapeutic agents in the treatment of this disease is answered—What, then, is our duty?

Our imperative duty is to remove the adventitious growth from the body by a surgical operation—extirpation by the knife.

If the limits of the disease can be reasonably defined, excision gives the only chance of prolonged life, if not of actual cure, and the sooner such operation is determined upon and carried out the better, both for the patient and

* Practical Surgery, 3rd Ed., p. 169.

the reputation of the Surgeon. Even if there be a *doubt* as to its constitution, it is our duty to operate.

Supposing, then, we have determined to extirpate an exostosis, are there any set rules to guide us in our proceeding? There are none, we must rely solely upon our anatomical knowledge and upon our acquaintance with the common broad principles of surgery for the issue.

Professor Fergusson remarks in commenting upon Mott's operation in 1827 for removal of an osteo-sarcomatous clavicle, the size of a "couple of fists," and upon Dr. Warren's operation in 1832 for the removal of the whole of the clavicle for a similar disease, and upon a similar operation performed by Syme, that these operations "were evidently by the operators themselves, deemed of the most formidable kind, and such, in my opinion, as should induce others of less acknowledged reputation and experience, to weigh well all the circumstances before resorting to the use of the knife."

Such a caution is deserving of every consideration, coming as it does from one whose experience in this subject is very extensive, but we ought never to allow magnitude alone to scare us or cause us to delay that which is imperative when the life of a fellow being is placed in our hands.

The man from whom I removed nearly the whole of the lower jaws for a formidable osteo-sarcoma, weighing 2 lb. 12 oz.—a report of which case appeared in the 1st No. of this Journal—is now alive and enjoying good health. A worse case I had never seen, few so bad, yet a sense of duty constrained me to resort at once to the use of the knife as the only possible hope of life, although the professional assistance I enjoyed in this remote station might have deterred me from operating.

In the case of exostosis now reported, bearing in mind the constitution of their growth, and knowing from experience that a tumour of its nature (although singular in its appearance upon the *scapula* of so young and healthy a boy) admitted of no other treatment, I at once resorted to the knife for its radical extirpation, and determined, if necessary, to remove the major part of that bone with the tumour. The result of this case is, at present, all that could be desired.

As the pathological preparation shews; to have adopted any other course of treatment would simply have laid me

under the rightly severe censure above pronounced by Mr. Fergusson upon those men who tamper with such cases, and place "faith in either local applications or constitutional remedies."

Dowlaishweram, 16*th January*, 1862.

CASE.*

Exostosis of the Scapula in a youth—Extirpation—Cure.

October 30*th*, 1861.—Soobraydoo, Æt. 8 years, the son of a Sapper Naick, was brought to the hospital by an uncle—he being an orphan—for the purpose of having a tumour on the back of the shoulder removed, as the youth and his friends were anxious he should show no deformity, if possible, when the time for enlistment might come. In his then present condition he was certainly much deformed.

It was stated that the tumour had been observed for the last three years, and that it had increased in size gradually for the last two years, prior to which period it appeared about the size of a hen's egg.

It has been altogether painless, and has in no way interfered with the motions of the bone. He can give no cause for its appearance; he might have been struck with a stick upon the back, it was indeed very likely, but the boy could not remember. The tumour bulged out from the dorsum of the scapula in an irregular nodulated mass, about the size of an orange; it moved with the motions of the scapula; it sprang from the base of the spine and the vertebral edge or base of the bone. As he stood erect the tumour projected outwards an inch and three quarters from the scapula and measured seven inches around its base. It was very hard, irregular, and bony to the touch, *and the integument was easily moved over it.*

He was a bright, healthy, intelligent-looking little lad, and had enjoyed good health in general. His appetite was good, and functions natural.

On the morning of 8th of November, assisted by Asst. Apothecary Karney, and Dressers Venkatanaidoo and Rajahghopal, I proceeded to extirpate this morbid growth.

Chloroform being administered to complete insensibility, I made one long incision from the superior to the inferior angle of the scapula over the tumour, and a second one from the axillary border to the centre of the longitudinal incision. The flaps thus made

* We regret that, owing to the time occupied in the production of the lithographs which appear in the present number of the Journal, we are unable to reproduce the drawing which accompanied this case.—Ed. *M. Q. J.*

being dissected off the tumour to its base ; parts of the deltoid, supra and infra-spinatus muscles being then divided the complete extirpation was effected by the saw, and one or two applications of the bone-nippers, so as to remove every vestige of diseased growth.

There was but little bleeding, and no artery required tying. The flaps being replaced, were then united by five interrupted sutures and dressed with wet lint, a strap or two of adhesive plaster, and a figure-of-eight bandage completed the ordeal.

The extirpation was effected in less than five minutes, and the little boy bore the operation well.

Examination of the tumour proved it to be a dense exostosis entirely incased in a pearly cartilaginous indusium closely surrounded by a thickened tough periosteal covering.

The pathological preparation was forwarded to Madras College Museum.

From the date of the operation up to the date of discharge—5th December—not a bad symptom supervened. Cold-water dressing, strapping, and the figure-of-eight bandage, with an occasional dose of oil formed the after-treatment, and when the boy left hospital all that remained of his former disfigurement were two, fine seams along the ⊣ shaped incision made for the removal of the tumour. Since then I have repeatedly seen him with his play-fellows, and the back appears as sound and wellshaped as any other boy's.

REMARKS.

The peculiar feature of this case is the appearance of an exostosis in so young a boy, otherwise enjoying excellent health, and especially that this exostosis should exist *on the scapula.*

I have seen numerous cases of exostosis upon different bones, but I never saw one upon the *scapula* before. Upon the cranium, the upper and lower jaws, the clavicles, the bones of the hands, legs and feet, these growths are common enough ; they rarely occur, however, even upon these bones, in subjects of such tender age. In the present case I have no doubt—seeing that the boy's health has always been good—that this exostosis of the scapula originated in a blow from a stick, probably inflicted by some play-fellow.

Feeling sure of its nature, I had no hesitation in resorting to the knife for its extirpation. To have dallied with iodine and mercurial inunction would only have been to put off the evil day, while the chances are that the boy's deformity would have increased as steadily the next three years as it had previously done.

DOWLAISHWERAM, *5th January,* 1862.

Art XV.—*Annual Medical Report of Her Majesty's 69th (South Lincolnshire) Regiment of Foot, from 1st January to 31st December* 1860. By Surgeon Major Huntley George Gordon, M.D., Surgeon to the Regiment.

[Presented by the Principal Inspector General Medical Department, Madras Army.]

Description of "Tongoo" and its Vicinity.

"Tongoo" is situated in Latitude 18° 57″ North, and Longitude 96° 30″ East, it is distant from the Burmese frontier about 40, and from "Ava," the seat of Burmese Government, about 200 miles; it is stated to be about 300 feet above the level of the sea, and is close to, and on the right bank of the "Sittang River," by which it is distant from the coast about 260 miles, although in a direct line only about 160. It is surrounded by mountains, the eastern range stated to be about 25 miles distant, and 5,000 feet above the sea level; the western range 18 miles distant, with an elevation of 2,000 feet. The area of the district, of which it is the Capital, is about 3,500 miles, with a population of 66,773 souls, having 27,216 acres under cultivation, principally rice. The population of "Tongoo" itself is laid at 9,580 souls.

The "Kaubung," a considerable river, passes about 2 miles to the westward and southward of, and joins the "Sittang" about 5 miles below "Tongoo." The country for many miles to the north-west and south, consists of extensive "paddy" fields, which are flooded during the moonsoon, interspersed with groups of trees and jungle to the eastward, on the opposite bank of the "Sittang River," and stretching away to the mountain range, the country is covered with forest jungle, and in the open uncultivated spaces, with a coarse grass called "elephant grass," which grows to a height of 8 or 10 feet. The most remarkable forest trees, are "teak," several species of the "Acacia," among which is one, ("Inga Xylocarpa,") which yields a very hard wood called "iron wood;" the "wood oil tree" ("Dipterocarpus lævis," and "Grandiflora;") the "mangoe tree," the "silk cotton tree," and "palmyra palm" ("Borassus flabelliformis.")

Trees and Shrubs.

There are also, but in smaller numbers, the "jack tree" (Artocarpus integrifolia) the "cocoa nut," and "areca palms" ("Areca catechu;") the "acacia catechu," from which a quantity of "cutch" is made for exportation; the "cotton shrub" grows wild in large quantities. "Rattans" "(Calamus,") much used by the Burmese, grow plentifully; "tamarind trees," and several species of the "fig tribe:" "tobacco," of very good quality, is also extensively cultivated. There is a variety of "ferns," "orchids," and beautiful creepers, principally species of the "convolvulus," and "jasmine."

Natural History.

Of the wild animals the principal are, "elephants," "buffaloes," "wild cattle," several varieties of "deer," among which are the "brow antlered" and "sambur:" "black bears," "wild hog," "Royal tigers," "rhinoceros," "cheetahs," "tiger cats," "squirrels," "monkeys," and a small kind of "hare."

Of birds, the principal are the "eagle," "vulture," "kestril," "crane," "heron," "pea fowl," "jungle fowl," "pigeons," several handsome varieties; "owls," "King fishers," "woodpeckers," "sun birds," "weaver birds," a species of "finch," which builds a pensile nest; "quails," "plover," "snipe," "pelican," "cormorant," "wild ducks," "wild geese," seldom seen; "startings" or "mynahs," some species of which learn to talk very distinctly; "parakeets," several species; "crows" and "sparrows."

Of reptiles, "alligators," "tortoises," and "turtle." The "ghecco" or "house lizard" abounds, a large one is called "tucktoo" on account of the peculiar noise it makes. Of the "iguana," there are several species, some of which possess the power, in a slight degree, of changing their colour. Of the poisonous "snakes" the principal are the "belted hamadryad," and the "Burmese cobra;" the former is marked with alternate transverse stripes of white and black, and sometimes reaches the length of 12 feet; the latter differs from the "Indian cobra" in having only one spot at the back of the neck, instead of the spectacle-like marking. "Pythons" are often seen and are said to reach the length of about 20 feet. "Frogs" are numerous and in great variety.

Among fish are found several species of "cat fish," (Pimeladinæ) "gar fish" (Belon caudimaculator); the

"Rohita carp," which dried and smoked, is largely exported from "Tongoo;" "Tongoo carp," like an "English carp" in form, but is without barbules; "Tongoo systomus," a plain fish without markings.

The entomology may be condensed by quoting an extract from a work on "Burmah," by the Rev. Doctor Mason.

The "lack insect," "blister fly," the "honey bee," and the "silk moth," are important for their utility. The "fire flies," the "green beetles," and the "butterflies," for their beauty; the "white ant," the "blight," and the "caterpillars," for their predatory habits; and the "gnats," the "mosquitoes," the "gad fly," the "ticks," the "bugs," the "fleas," the "scorpions," and "centipedes," for their annoyances to man.

Nature of Soil.

The soil around "Tongoo" is principally laterite, and there is an extensive manufactory of bricks and tiles close to "Tongoo." The mountains are granite.

Fruits and Vegetables.

The fruits most commonly seen are "jack fruit," "mangoe," "orange," "sweet and acid lime," "citron," "pine apple," "guava," "tamarind," "cocoa nuts" in small numbers. The natives cultivate but few vegetables, principally "cucumbers," "onions," and "pumpkins," "sweet potatoes," "yams." "Tomatas," are also grown, but in comparatively small quantities; "wild asparagus" ("Asparagus acerosus") grows commonly and is a palatable vegetable. During the cool season, from November to March, "lettuce," "cabbage," "celery," "peas," "French beans," "turnips," "parsnips," and "English potatoes," can be produced; the last as yet have not been very successful. The country affords a fair supply of cattle, and there is a regular supply of fresh beef. Sheep do not thrive well; a flock of them is maintained by the Commissariat, for the use of the hospital.

Climate and Atmospheric Phenomena.

"Tongoo" is considerably influenced by the S. W. monsoon, which prevails from about May to October, and in a lesser degree by the North East, which blows for the rest of the year. The rainy season occurs during the former, and is generally ushered in by severe thunder storms; the annexed tables shew the temperature, and fall of rain during the past year, the latter of which was about 10 inches,

above the usuual average which may be placed at 90 inches. Earthquakes are not uncommon in Burmah; occasionally, but rarely the shock is severe. The "Sittang River" during the rainy season rolls an immense volume of water to the ocean, and communicates with the "Irrawaddy" by creeks, which are navigable for large country boats; during the dry season it shrinks so much as to be fordable opposite "Tongoo;" but the health of the cantonment does not appear to be influenced by the state of the river. The climate of "Tongoo" appears to be very favourable to the European constitution for a limited time, but after a residence of 2 or 3 years, the vital powers appear to suffer, which declares itself by tedious convalescence, after even a slight illness. As a general rule, "fevers" prevail about June, July, and August, and "dysentery" about the setting in of the cool season: "hepatic" affections occur at all seasons of the year; acute cases terminating in "abscess" are infrequent.

A few cases of "sporadic-cholera" occasionally occur among the native population, but no case of this disease has appeared among the Europeans since the reporter's residence at the station, viz., 3 years and 4 months. The Burmese suffer much from "intermittent" and "remittent" fevers, and also from "small-pox," rarely in an epidemic form.

Prevailing Diseases.

During the present year, "fevers" and "bowel complaints" have prevailed to very nearly the same extent throughout the whole period; a large proportion owe their origin to the unfavorable climate of "Shouay Gheen," a detachment, where the rate of sickness and mortality has been high. The detachment was permanently withdrawn in December at the representation of the Commissioners, who were sent to "Burmah" to retrench the expenses of the province, and who recommended the abandonment of several of the smaller posts.

Description of the Fort of Tongoo.

The Fort of "Tongoo" was occupied by the British on the 22nd Feburary 1853, it is $1\frac{1}{2}$ miles long by $1\frac{1}{4}$ broad; there are still the remains of its walls which are high and broad, earthen ramparts faced with excellent brick, it is surrounded by a broad, but rather shallow ditch. A large portion of the area of the fort, towards its south face, is occupied by a lake, the remaining portion by the

Native bazaar, Civil Jail, dwelling houses, pagodas, &c. A portion of the Southern rampart is occupied as the Commissariat elephant and cattle lines: and at the S. W. angle a new fort is in the process of erection. The Cantonment was formed and occupied about $4\frac{1}{2}$ years ago, and is situated at the S. E. angle of the fort, about 300 yards distant from the river; it runs nearly north and south, and is about a mile long by half a mile broad: it is built on a plateau somewhat elevated above the surrounding country, which latter becomes a perfect swamp in the rainy season, and is sometimes impassable, even on elephants. The soil is sandy. The situation of the Cantonment renders its drainage by means of ditches, simple and effectual. The blocks of buildings occupied by the European Regiment are 20 in number, each intended for 50 men, they are 160×63 feet, lofty and elevated, on posts about 7 feet above the ground, they are substantially built of teak, and thatched with grass. In each building there are 4 rooms at the angles, about 12 feet square, partitioned off for Non-Commissioned Officers. The doors are 12 in number, two at each extremity, and 4 at each side of the building; the windows are 24 in number, 2 at each extremity, and 10 at each side. The average monthly cubic space of air per man in barracks is about 1,700 cubic feet, and in hospital about 2,000 cubic feet. Cleanliness prevails both within and without the barracks and out-houses. Four of the blocks of buildings have been set apart for the married families, each divided into 14 quarters, which are about 20 feet square, the partitions are built of timber, about 8 feet high; each quarter opens into a narrow verandah which encircles the bungalow, this verandah has two small staircases at each extremity, and 4 at each side, as means of ingress and egress, the ventilation which would otherwise be impaired by the partitions has been rendered free by the addition of ridge ventilators. The bungalows are well ventilated, as the walls, 9 feet high, do not reach within about a foot of the roof above, and on the level of the floor, about a foot of the planking is on hinges, and can be raised when required like the sill of a port on board-ship; this is necessary as the slope of the roof and depth of verandah prevent the free entrance of air by the windows. The spaces under the rooms are

Cantonment.

Barracks and Hospital.

used as dining rooms, and afford a lounge for the men during the hot and wet weather. Two of the blocks of buildings have been handed over for hospital purposes, and answer very well. A hospital is to be constructed, but nothing specific is known on the subject. The ablution houses are 10 in number, arranged between the blocks of buildings: they are 40×20 feet, and afford ample means for their intended purpose: they also are built of teak and thatched, but are only raised about 3 feet above the ground. There are three wells situated near the ablution houses, affording an ample supply of water, which is very good when filtered. Two filters are supplied to each barrack room.

Cook Houses.

The cook houses are placed at some little distance from the barracks, an unavoidable necessity, where all the buildings are composed of such inflammable materials. They are built of interwoven bamboo and thatched with grass, with the brick cooking ranges; they are commodious, and well adapted for their intended purpose; these, I understand, will shortly have their roofs shingled, and their walls plastered, which will render them more durable and less inflamable.

Latrines.

The latrines, which are of like construction with the cook houses, are built over pits; this, however, has been found not to answer, and they are to be altered, so that the refuse may be removed daily and carted to a distance; they are purified by means of "lime" and "charcoal," which are periodically thrown into them.

Guard Houses, Cells, &c.

The guard houses, cell, &c., possess sufficient accommodation, and are well ventilated.

Bathing Parades, Rations.

There are not any bathing parades, as the river is dangerous. The rations are as follows, viz., tea $\frac{5}{7}$ oz. five times a week; coffee $1\frac{3}{7}$ oz. twice a week; sugar $2\frac{1}{2}$ oz. daily; bread 1 lb. daily; beef 1 lb. daily; onions 4 oz. daily; salt 1 oz. daily; vegetables 12 oz. daily. The vegetables are in general "yams," "sweet potatoes," or "preserved potatoe." The bread and meat are of good quality. No salt provisions are issued to the troops. As a general rule the men prefer their meat being made into soup; they are allowed variety in cooking should they wish it.

Rations and Hospital diet. The hospital diets are as follows:—

Full.	Half.	Low.	Spoon.	Milk.
Meat 1 lb. (Either Beef or Mutton.)	Mutton ½ lb, or ½ a Fowl or a Chicken.	Mutton 8 oz. or a Chicken.	Bread 8oz. or 4 oz. Sago.	Bread 1 lb.
Bread - - 1 lb.	Bread - 1 lb.	Bread - 8 oz.	.....	Milk - 36 oz.
Butter - 1 oz.	Butter - ½ oz.	Milk - 6 oz.	Sugar 2¼ oz	.....
Milk - 6 oz.	Milk - 6 oz.	Sugar - 1½ oz.	.....	Butter ½ oz.
Sugar - 1½ oz.	Sugar - 1½ oz.	Tea - ½ oz.	Tea - ½ oz.	.....
Tea - ½ oz.	Tea - ½ oz.	Rice - 4 oz.	.....	Tea - ½ oz.
Rice - 4 oz.	Rice - 4 oz	Salt - ½ oz.	Milk - 9 oz.	.....
Salt - ½ oz.	Salt - ½ oz.	Onions - 1 oz.	.....	Rice - 6 oz.
Onions - 1 oz.	Onions - 1 oz.	Pepper - $\frac{1}{16}$ oz.	Salt - ½ oz.	.....
Pepper - $\frac{1}{16}$ oz.	Pepper - $\frac{1}{16}$ oz.	Barley - ½ oz.	.....	Salt - ½ oz.
Barley - ½ oz.	Barley - ½ oz.	Flour - ½ oz.	Rice - 2 oz.	.....
Flour - ½ oz.	Flour - ½ oz.	Greens - ½ oz.	.....	.....
Greens - ½ oz.	Greens - ½ oz.	Yams or Potatoes - ½ lb.	.....	.....
Potatoes or Yams ½ lb.	Potatoes or Yams ½ lb.	.....	.....	.....

N. B.—Mutton and fowl are issued on alternate days in half and low diets and beef and mutton alternately on full diet.

Clothing of Troops, Duties, &c.

The clothing of the troops is sufficient, and well adapted for the climate. A large number of what are called boarded cots, have been issued to the men in barracks for which mattrasses are not supplied, although frequent representations have been made on the subject. The nature and amount of duty performed by the troops has not been such as to exercise a prejudicial influence on their health; the drills during the season (from November to May,) number about five in the week, they take place either early in the morning, or in the cool of the evening. The proportion of nights in bed is about six. There is a very fair Library and Reading room, in which are Bagatelle tables, Back-gammon Boards, Chessmen, &c. There are two Skittle Alleys, and a Regimental Cricket Club: the men also occasionally play at foot ball. There is very fair Regimental theatre, in which there are two performances a month. The Canteen is a commodious and well ventilated building, 130 feet long by 45 broad. The men can there obtain beer, porter, arrack, ginger beer, and cheroots; all of which are of good quality; each man

Amusements.

Canteen.

is allowanced to 1 quart of malt liquor, and 1 dram of arrack; or 1 pint of malt liquor, and 2 drams of arrack a day; and the Police arrangements regarding the sale of spirits in the bazaar, render it difficult for men to procure anything further. The sobriety of the Regiment has been most remarkable since its arrival at "Tongoo," which doubtless assisted in mantaining its generally very good health.

Vaccination.

Vaccination has not been practised during the year; the families only joined the Regiment in May, and all their numbers had been vaccinated before leaving England. No case of "small-pox" occurred in the Regiment during the year. The average strength of the Regiment during the year has been 910 $\frac{6}{12}$; and the changes in the composition of the Regiment during the year have been as follows:—

Remained 31st December 1859	924
Joined from England	202
Transfers received from other Corps	4
Total...	1,130
Died in Hospital	15
Died out of Hospital	1
To England for discharge	52
To England as Invalids	21
Discharged by purchase	1
Discharged at Madras and transfers given to other Corps.	5
Remains on 31st December 1860	1,036

Stations, and Strength of detachments during the year 1860.

STATIONS.	Average Strength.	Period. From	Period. To	REMARKS.
Head Qrs. Tongoo	667 $\frac{3}{12}$	1st Jany.	31st Dec.	
Detachment Shouay Gheen.	135 $\frac{4}{12}$	1st Jany.	5th Dec.	Detachment permanently withdrawn in December.
Rangoon	14 $\frac{9}{12}$	1st Jany.	31st Dec.	Invalids, Draft's &c. En route to and from Head Quarters.
Detachment Poonamallee...	93 $\frac{2}{12}$	1st Jany.	31st Dec.	
	910 $\frac{6}{19}$			

Table of Admissions, Deaths, &c., arranged under the orders of each class, for the year 1860.

Class.	Diseases.	Remained	Admitted.	Total.	Died.	Invalided.
	All causes	41	1,546	1,587	16	21
	Specified causes	41	1,546	1,587	16	21
	CLASSES.					
1	Zymotic Diseases	31	1,066	1,097	13	10
2	Constitutional Diseases	0	9	9	1	1
3	Local Diseases	9	392	401	1	9
4	Developmental Diseases	0	3	3	0	1
5	Violence Diseases and deaths.	1	76	77	1	0
	Total	41	1,546	1,587	16	21
	ORDER 1. MIASMATICI.					
	Chicken-pox	0	1	1	0	0
1	Quinsy	0	6	6	0	0
	Catarrh	2	50	52	1	0
	Ophthalmia (Purulent)	1	0	1	0	0
	Erysipelas	0	0	0	0	1
	Dysentery	3	92	95	3	5
	Diarrhœa	2	89	91	0	0
	Typhus Fever	0	4	4	1	0
	Continued Fever	5	45	50	2	1
	Ague	1	408	409	0	0
	Remittent Fever	10	162	172	6	1
	Rheumatism	3	55	58	0	1
	ORDER 2. ENTHETICA.					
	Gonorrhœa	2	30	32	0	0
	Stricture of Urethra	0	2	2	0	0
	Fistula of Urethra	0	3	3	0	0
	Syphilis (Primary)	1	18	19	0	1
	Bubo (Syphilitic)	1	22	23	0	0
	ORDER 3. DIETICI.					
	Alcoholism(DeliriumTremens)	2	9	11	0	0
	Intemperance	0	16	16	0	0
	ORDER 4. PARASITICI.					
	Scabies	0	10	10	0	0
	Phthiriasis	0	1	1	0	0
	Tape Worm	0	8	8	0	0

Class.	Diseases.	Remained.	Admitted.	Total.	Died.	Invalided.
	ORDER 2. PHTHISICI.					
2	Psoas Abscess	0	1	1	1	0
	Phthisis	0	6	6	0	1
	Hæmoptysis	0	2	2	0	0
	ORDER 1. CEPHALICI.					
3	Mania	0	2	2	0	0
	Dementia	1	4	5	0	0
	Epilepsia	0	2	2	0	0
	Neuralgia	0	1	1	0	0
	Ophthalmitis. One Eye	1	38	39	0	0
	Ophthalmitis. Both Eyes	0	9	9	0	1
	Ophthalmitis. Chemosis	1	2	3	0	1
	Otitis	0	18	18	0	0
	Deafness	0	0	0	0	1
	ORDER 2. CARDIACI.					
3	Pericarditis	0	1	1	0	0
	Disease of Heart Valves	0	25	25	0	4
	Heart Hypertrophy	0	2	2	0	0
	ORDER 3. PNEUMONIA.					
	Bronchitis	0	9	9	0	0
	Pleurisy	0	3	3	0	0
	Asthma	0	3	3	0	0
	ORDER 4. ENTERICI.					
	Peritonitis	0	1	1	1	0
	Constipation	0	4	4	0	0
	Colic	0	9	9	0	0
	Dyspepsia	0	42	42	0	0
	Hæmorrhoids	1	17	18	0	0
	Prolapsus Ani	0	1	1	0	0
	Spleen Disease	0	1	1	0	0
	Hepatitis	1	47	48	0	0
	ORDER 6. GENNETICI.					
	Varicocele	0	1	1	0	0
	Orchitis	0	15	15	0	0
	Hydrocele	0	2	2	0	0
	ORDER 7. MYOSTICI.					
	Arthritis	0	1	1	0	0
	Periostitis	0	2	2	0	1
	Tumor (Fibrous over Right Trochanter)	0	1	1	0	0

Class.	Diseases.	Remained.	Admitted.	Total.	Died.	Invalided.
	ORDER 8. CHROTICI.					
	Herpes	0	5	5	0	0
	Psoriasis	0	2	2	0	0
	Tinea	0	2	2	0	0
	Phlegmon	2	75	77	0	0
	Whitlow	0	6	6	0	0
	Abscess (external)	0	2	2	0	0
	Ulcer (inferior extremities)	0	28	28	0	1
	ORDER 4. GERATICI.					
4	Debility	0	3	3	0	1
	ORDER 1. TYCHICI.					
5	Burn (from trampling out fire)	0	2	2	0	0
	Scald (by the upsetting of vessels containing boiling water)	0	3	3	0	0
	Sun stroke (when playing at cricket)	0	1	1	0	0
	Suffocation. (At Poonamallee, Madras, when drunk)	0	0	0	1	0
	Fracture of Radius	0	1	1	1	0
	Sprains of inferior extremities.	0	28	28	0	0
	Luxation, (left shoulder)	0	4	4	0	0
	Contusions of inferior extremities ; all simple	0	16	16	0	0
	Gun shot wounds. (Two by the accidental discharge of a fowling piece, and one by the accidental discharge of a revolver)	0	3	3	0	0
	Cut. (One from a razor, fifteen from bamboo)	1	16	17	0	0
	Contused wound, scalp, (accidentally received by the falling of a shot)	0	1	1	0	0
	Foot sore	0	1	1	0	0

Alphabetical List of Diseases in the preceding Table.

Diseases.	Class and Order.		Diseases.	Class and Order.	
	Class.	Order.		Class.	Order.
Arthritis	3	7	Neuralgia	3	1
Abscessus	3	8	Obstipatio	3	4
Abscessus Psoanus	2	2	Ophthalmia	1	1
Ambustio	5	1	Orchitis	3	6
Asthenia	4	4	Otitis	3	1
Asthma	3	3	Paronychia	3	8
Bronchitis	3	3	Pericarditis	3	2
Bubo	1	2	Periostitis	3	7
Catarrh	1	1	Peritonitis	3	4
Colica	3	4	Phlegmon	3	8
Contusio	5	1	Phthiriasis	1	4
Cordis (Morbi)	3	2	Phthisis	2	2
Delirium Tremens	3	1	Pleuritis	3	3
Dementia	3	1	Psoriasis	3	8
Diarrhœa	1	1	Prolapsus Ani	3	4
Dysecœa	3	1	Rheumatismus	1	1
Dysenteria	1	1	Scabies	1	4
Dyspepsia	3	4	Splenitis	3	4
Ebriositas	1	3	Strictura Urethræ	1	2
Epilepsia	3	1	Subluxatio	5	1
Erysipelas	1	1	Suffocatio	5	1
Febris	1	1	Syphilis	1	2
Fractura	5	1	Tonsillitis	1	1
Fistula urethræ	1	2	Tinea	3	8
Gonorrhœa	1	2	Tumor	3	7
Hæmoptysis	2	2	Typhus	1	1
Hæmorrhois	3	4	Ulcus	3	8
Hepatitis	3	4	Varicella	1	1
Herpes	3	8	Varicocele	3	6
Hydrocele	3	6	Vermes	1	4
Insolatio	5	1	Vulnus Incisum	5	1
Luxatura	5	1	Vulnus Contusum	5	1
Mania	3	1	Vulnus Sclopetarium	5	1
Morbis Cordis Valv.	3	2	Vesiculæ Pedis	5	1

Proportion of Deaths to Strength.

The total deaths to the strength for the year, were in the proportion of 17·5 per thousand.

Proportion of Admissions and Deaths by Zymotic Disease.

The proportion, which the admissions under the head of "Zymotic" disease has borne to the total admissions, is two-thirds, and the deaths four-fifths.

Effect of Climate on the men as produced by Age, Residence, &c.

New arrivals in "Burmah" have a tendency to suffer from "bowel affections." The "febrile affections" have been almost entirely caused by the residence of a detachment at "Shouay Gheen;" the proportion of attacks has been nearly equal among all ages and classes of residents in the service; but the deaths in hospital among old residents have numbered 14 out of the total 15. It was recommended to the commanding officer that the "Shouay Gheen" detachment should be reduced in number, and that it should be relieved every six months instead of annually; the latter proposition only was accorded by the authorities, and the detachment continued to be furnished until December, when it was withdrawn under the circumstances mentioned in a former portion of this Report.

Remarks on "Shouay Gheen" Detachment.

Causes of aggravated Fever at Shouay Gheen.

The cause of the aggravated form of fever which prevailed at "Shouay Gheen," may be attributed to its situation (about 200 feet high), which rises abruptly at the distance of about a quarter of a mile from the left bank of the "Sittang River," the space between the river and the site occupied by the cantonment becomes flooded during the monsoon, and when a break in the weather occurs, and the river goes partially and temporarily down, a large quantity of mud and decaying vegetable matter is left exposed to the rays of an almost vertical sun, over which the then prevailing S. W. monsoon blows; it is during this season that the fever assumes its most aggravated type. The seasons at "Tongoo" do not influence the sanitary condition of the cantonment to any very great extent, and the cases of fever which occur are, almost without exception, of "intermittent type." Fevers numbered, 408 "Intermittent," 162 "Remittent," of which 6 died. 45 "Common continued," of which 2 died. 4 "Typhus," of which 1 died:—in all 619 cases with 9 casualties, of which 7 occurred at "Shouay Gheen," 1 at "Tongoo," a few days after arrival from "Shouay Gheen;" and 1 at "Madras" in the General Hospital,

Effect of Season at "Tongoo."

The cases which occurred at "Tongoo" were, as before stated, almost entirely of the "intermittent" type, and yielded readily to treatment, which generally consisted in the exhibition of an emetic (either mustard or ipecacuanha.) Turpentine stupes across the regions of liver and spleen; and 10 grain doses of quinine in the interval of the paroxysms: during convalescence, tonics, and occasionally liquor arsenicalis.

Fevers.

At "Shouay Gheen" during the monsoon, the fevers were of the "remittent" type, in a very low form resembling "typhus;" but without its severe head-ache on invasion, or its petechiæ. The attacks were generally insidious, and not preceded by any marked symptoms; the duration of the attack was about 14 days, during which extreme weakness and prostration with sleeplessness were the prominent symptoms, no head-ache or pain in the back complained of; the tongue, at first, dry and brown in the centre, became black, with the gums and lips loaded with sordes; pulse in some cases quick and small, in others full and quick and compressible; the skin clammy and leathery to the touch, not elevated in temperature; occasionally low muttering delirium, but generally the patient preserved a dogged silence, and could with difficulty be induced to answer questions. In the treatment of this form of fever, quinine was found to have no effect on the course of the disease, and to be injurious where there was a tendency to head symptoms. Wine and brandy in large quantities were the only remedies latterly employed; attention at the same time being paid to the state of the bowels. The recovery was slow and never marked by a crisis; the tongue becoming moist and cleaning from the edges, with the patient beginning to refuse his wine, were the first symptoms of a satisfactory nature, and were always followed by recovery with a tardy convalescence. No yellowness of surface was ever observed, nor anything remarkable on *post-mortem* examination, except that the spleen was rarely much enlarged—a marked contrast to the state of that organ as induced by the "remittent fever" of China.

Bowel complaints.

Bowel complaints have "numbered 92 Dysentery," and 89 "Diarrhœa." 3 Casualties occurred under the former head, 2 at "Tongoo," and 1 at "Rangoon," a case from "Tongoo."

These affections prevailed principally at "Head Quarters," but cases of "Diarrhœa," as a rule, yielded readily to treat-

ment; this disease generally attacks new comers, and should not be overlooked, otherwise it is likely to become chronic. The wearing of the flannel belts called by the men "cholera belts," should be strictly attended to.

The dysenteric affections were not, with a few exceptions, of a very acute type, this disease at the station is of a sub-acute character; there is seldom much abdominal tenderness on pressure, and the evacuations contain more mucus than blood; there is an early tendency to ulceration. The treatment generally pursued is some castor oil on admission, followed by two scruples of ipecacuanha, exhibited about 20 minutes after 60 minims of tincture of opium, repeated if necessary; turpentine fomentations to the abdomen: the application of leeches is seldom indicated: in some few instances, mercurials, have been employed in the form of Hydrarg cum Cretâ; milk and farinaceous diet.

These large doses of ipecacuanha exercise a most beneficial influence on the disease, as it appears at this station and cannot be too highly recommended. Ophthalmia did not occur in a severe form; generally cases of conjunctivitis. Two men were invalided under this head; in both cases, vision of both eyes impaired: they left Madras on the 24th April 1860, in the ship "General Caulfield;" name of Medical officer in charge unknown.

Venereal Disease.

Venereal Affections have increased very much in number as compared with former years, there is reason to believe that they have been imported by a recently arrived colony of women (natives of India) who live in the bazaar out of cantonment limits, and over whom there does not appear to be any jurisdiction whatever.

The only mode by which this class of disease could be checked, would be by the establishment of a "Lock Hospital," regarding which some move has been made. Under the head of Syphilis, there have been a large number of secondary cases, principally pains referred to different parts of the body. In a great many instances, buboes have been consequent on chancre. Mercury is rarely and sparingly used in the treatment of syphilis; occasionally in cases where there is great induration.

Hepatitis.

Hepatitis.—47 cases treated, generally sub-acute, three or four only assumed a severe form, one of which terminated in abscess, the contents of which were

discharged both by the bowels and the lungs: the man was sent away when convalescent for change of air.

The treatment consisted in the application of leeches, fomentations, blisters and purgatives, generally pills and draught as follows—viz.: ℞ Mas. Pil. Colocynth, Pil. Hydrarg, Ext. Hyoscyami, āā gr. iii., Misce, divided into 2 pills, to be followed in six hours by ℞ Pulv. Rhei, 3ss., Vin. Colchici, Tinct. Cardamom, āā 3 i., Sodæ Sesquicarb. gr. xii., Mist. Camphoræ, ℥i.

Insolatio.—One case, the man was struck down when playing at cricket: the principal remedy employed in his recovery was a continued stream of cold water poured on the head.

Insolatio.

Diseases of the Heart.—27 cases are returned as having been treated, principally valvular disease; of these 12 were re-admissions, and 4 were invalided. It is difficult to assign any cause for so many cases occurring under this head; intemperance cannot be adduced, as the sobriety of the Regiment has been, and is, most extraordinary. Smoking has been suggested, but this habit has not increased in the Regiment, and never caused such disease in the West Indies, where the men smoked the strongest description of "Cavendish."

Diseases of the Heart.

Peritonitis.—One case occurred, which proved fatal, the patient was of an enfeebled constitution, and sank rapidly: there was not any trace of tubercular deposit.

Peritonitis.

Catarrhus Chronicus.—A fatal case occurred under this head (which ought to have been returned Phthisis Pulmonalis.) The man had been a baker by trade, about 25 years of age; habits temperate, service 5½ years, of which, in the West Indies 1 year, and 2 years in India. The disease became apparent after he had had several attacks of fever at "Shouay Gheen," by which he was much debilitated, and by which the latent chest affection was doubtless developed. There was tubercular deposit in both lungs, but not elsewhere.

Catarrhus Chronicus.

Psoas Abscess.—A fatal case under this head occurred in a patient 24 years of age, and 5 years service (of which in India 2 years.) Temperament leucophleymatic. Baker by trade, habits temperate. On the 13th April, 1860, was admitted laboring under a very acute

Psoas Abscess. Detailed Case.

and unmanageable attack of gonorrhœa. On the 12th July, 1860, three abscesses (each about the size of a pigeon's egg) appeared in the following situations, viz., at insertion of deltoid of left arm, just below axilla; and on left buttock: these abscesses were respectively opened, and discharged considerable quantities of healthy pus. On the 17th August, the glands of left groin became hard, swelled and painful; his appetite was capricious, and he had lost flesh, these symptoms were relieved by treatment, he rallied a good deal, and on the 16th October he was discharged to proceed to Rangoon for change of air. Shortly after his arrival at Rangoon (about the first week in November,) an abscess pointed just below the left trochanter, which discharged very freely on being opened: he gradually sunk, and died on the 22nd November, 1860.

Post-mortem appearances.—The abscess extended from its point of exit upwards and inwards under Poupart's ligament (hip joint not at all involved), downwards beneath the iliacus internus, denuding the periosteum from the iliac and pubic portions of the inner aspect of left pelvis, and forming numerous sinuses along the fascia and cellular tissue surrounding the bladder, rectum, and important vessels and nerves situated in their vicinity. The abscess was traced to the sacrum, which did not, however, appear to be affected. The ascending and transverse colon highly inflamed, of a dark red color, much inflated and displaced—the latter being caused by a firm band of adhesion between the great omentum and pelvic fascia; the mucous lining of the colon pulpy, thickened, and of a dark red color. Pleuritic adhesions of old standing of the right side of the chest; nearly a pint of serum in each cavity; congestion of superior lobe of left lung. No other morbid appearances.

Rheumatic Affections.— No case worthy of remark.

Delirium Tremens.—Nine admissions. None severe.

Mental derangement.—The cases returned and treated under this head occurred in two individuals, one of whom has been discharged to duty as being in the Reporter's opinion sane; the other still remains in hospital under the head of Dementia.

Gun-shot Wounds.—Three men were thus injured, two by small shot, owing to the accidental discharge of a fowling piece, and the third (the Armourer Serjeant,) by the accidental discharge of the chambers of a revolver, which he placed in the fire, in ignorance of one of them being loaded. The bullet struck the man on the chest, at the edge of, and

to the right of, the sternum, and glancing along the 4th rib, lodged near the right mamma; it was speedily extracted without any bad effects.

Wounds.—Under this head, only two cases of consequence—viz., one, in which the patient suffered much from a deep extensive transverse wound of the right forearm, caused by accidentally falling against a piece of sharp bamboo. Tetanic symptoms threatened, which were subdued by the exhibition of Tinct. Cannabis in combination with Tinct. Hyoscyami.

The second wound was in the vertex caused by a heavy shot falling on the head. The man came suddenly round a corner, near which some others were "putting," just after the shot had been delivered. The wound was extensive, but the bone was uninjured, and it was remarkable how little constitutional disturbance was caused by so severe an injury.

Fractura.—One of the radius, caused by a fall, when leaping with a pole.

Contusions were all slight and unimportant.

Ulcers.—One case of obstinate ulceration of the legs was invalided.

Officers.—Only one case worthy of remark, viz., concussion of the brain, by a fall with his pony; he recovered and returned to his duty after being under treatment for about five weeks.

Women and Children, with further remarks on Vaccination.

The Women and Children joined the Regiment on the 22nd May, and have generally enjoyed good health during the period embraced by this report. One woman died under the head of Fever with hepatic complication: she arrived at Headquarters in a bad state of health.

Vaccination was not practiced, as it was impossible to establish it at this station during the year, although several efforts were made. Vaccine lymph was procured from Simla. No case of *Variola* occurred in the Regiment during the year. No epidemic appeared in the Cantonment or its vicinity during the year.

Suggestions regarding Clothing.

In conclusion, I beg to suggest as an improvement in the clothing of troops serving in Burmah, that in lieu of the very heavy cloth trowsers at present in use, the men should be supplied with serge of a good texture, resembling those issued to the Regiment when serving in the West Indies; the price of which per pair was about, 8*s.* 9*d.*

Meteorological Observations, noticing the pressure of the atmosphere, the temperature and humidity of the air, the fall of rain, the amount of ozone and cloud, the prevailing winds, and the variations in the weather.

Year and Month.	Localities at which observations were made.	Reading of Barometer. No.				Temperature of Air.						Dry and Wet Bulb.		Rain.		Wind.
						Highest in month.	Lowest in month.	Range in month.	Mean of all highest.	Mean of all lowest.	Mean daily range.	Mean of dry bulb.	Mean of wet bulb.	Number of days it fell.	Amount collected.	
1860.																
January	Tongoo—Burmah.					86	52	52 to 86	$79\frac{30}{31}$	$57\frac{3}{31}$	$68\frac{33}{62}$	$68\frac{33}{62}$	$61\frac{54}{62}$	1	0·30	Variable.
February						94	58	58 to 94	$88\frac{14}{29}$	$62\frac{19}{29}$	$75\frac{16}{29}$	$75\frac{16}{29}$	$66\frac{10}{29}$	...	...	North Easterly.
March						101	61	61 to 101	$95\frac{18}{31}$	$71\frac{3}{31}$	$83\frac{25}{62}$	$82\frac{25}{62}$	$70\frac{55}{62}$	...	...	N. E. S. E.
April						100	65	65 to 100	$92\frac{7}{30}$	$76\frac{9}{30}$	$84\frac{8}{30}$	$84\frac{8}{30}$	$74\frac{41}{66}$	5	13·33	N. E. S. E.
May						97	82	82 to 97	$89\frac{25}{31}$	$78\frac{15}{31}$	$84\frac{9}{62}$	$84\frac{9}{62}$	78	8	6·53	S. E. S. W.
June						98	72	72 to 98	$84\frac{27}{30}$	$77\frac{2}{30}$	$80\frac{29}{30}$	$80\frac{29}{30}$	$77\frac{21}{30}$	22	21·99	South Westerly.
July						88	74	74 to 88	$83\frac{8}{31}$	$76\frac{5}{31}$	$79\frac{22}{31}$	$79\frac{22}{31}$	$76\frac{26}{31}$	28	19·62	Do.
August						90	75	75 to 90	$84\frac{3}{31}$	$76\frac{29}{31}$	$80\frac{11}{31}$	$80\frac{11}{31}$	$77\frac{6}{31}$	25	12·01	Do.
September						89	75	75 to 89	$86\frac{9}{30}$	$76\frac{23}{30}$	$81\frac{16}{30}$	$81\frac{16}{30}$	$77\frac{19}{30}$	24	22·85	S. W. N. E.
October						94	72	72 to 94	$86\frac{27}{31}$	$74\frac{9}{31}$	$80\frac{18}{31}$	$80\frac{18}{31}$	$77\frac{12}{31}$	15	10·75	S. W. N. E.
November						88	68	68 to 88	$82\frac{27}{30}$	$73\frac{20}{30}$	$78\frac{47}{60}$	$78\frac{47}{60}$	$74\frac{21}{31}$	10	3·40	North Easterly.
December						87	55	55 to 87	$79\frac{28}{31}$	$60\frac{28}{31}$	$70\frac{12}{31}$	$70\frac{12}{31}$	$64\frac{51}{62}$	...		Do.
Mean.						$92\frac{8}{12}$	$67\frac{5}{12}$	52 to 101	$86\frac{94}{366}$	$71\frac{284}{311}$	$78\frac{507}{366}$	$78\frac{507}{366}$	$73\frac{67}{366}$	138	110·77	N. E. S. W.

Remarks.—The usually hot and oppressive weather of April was broken into by a sudden change on the 8th of the month, when heavy rain set in, this lasted until the 14th, during which period about 14 inches of rain fell, 6 inches on the 12th alone. During an average monsoon, the fall of rain would not exceed 90 inches.

HUNTLEY G. GORDON, M.D.,
Surgeon, 69th Regiment H. M. B. Army.

Art XVI.—*On a new Form of Fungus developed in a glass, in which Diabetic Urine had been examined.* By Thomas Lowe, Esq., Medical Officer, Madras Sappers and Miners.

(With an Illustration.)

I desire to direct attention to a form of fungus which is new to me, and appears interesting from the circumstances under which it was developed. The accompanying drawing (Pl. III.) represent it as faithfully as can be done without coloring. It will be observed that the mycelium is in a vesicular condition. This could hardly have arisen from moisture, as the glass in which the fungus had been developed, had not been exposed for eight months. This glass was last used in testing a specimen of diabetic urine.

The mycelium under a low magnifying power appeared plumose and of a fawn colour, from which the delicate little stipes sprang in an *umbellate* form—each stipe bearing a *black-looking* pileus. When magnified as seen in the accompanying diagram, this little specimen both surprised and delighted me.

1. Each stipe was very long and filled with numerous spheres and granules varying in colour. These granules passed up the delicate tubes to the pilei.

2. Each pileus was very large, and a beautiful *deep purpurine* colour. The sporules at the circumference very refractive.

3. The spores were packed in dense masses, and were round, and completely surrounded the extremity of each stipe.

I have met with no fungus like this one. M. Robin, in his work on Fungi, quotes a case from Müller's Archives by Mayer, in which a somewhat similar fungoid vegetation made its appearance in the ear of a scrofulous child. That the vegetation therein described and the one now figured by me are *not* the same will appear.

Thus—1st. This fungus developed itself within a *glass*, and not upon *animal* matter.

2nd. The stipes described *are* analagous in containing granules and granular matter.

3rd. M. Robin describes the *pileus* of his vegetation as *small and* of *greenish colour!* This is very large and of a *rich purpurine colour.*

A new form of Fungus

Magnified 400. diameters

4th. The arrangement and character of the spores are different.

M. Robin says they were spread over the surface of the extremity of the stipe singly or double; those here exhibited, it will be noticed, are densely packed together and completely surround the upper extremity of the stipe like a sponge.

5th. The spores thrown off were of a *purpurine colour.* The colour of the mycelium was of a bright pale yellowish green and fawn.

Perhaps the most marked differences lie in the *size, colour, and character* of the *pileus,* and the source from whence each fungus was obtained.

Art XVII.—*On the prevalence of Typhoid (Enteric, Intestinal) Fever in India.* By Surgeon Major J. L. Ranking, H. M. 105th Regt. of Foot (Madras Light Infantry,) &c.

The doctrine held in the schools until within a comparatively recent period, that the limits of Typ*hous* fevers (Typ*hus,* and Typ*hoid*) in this hemisphere are, as applies to Europe, between the parallels of 60° and 44° N. latitude, and in America between 48° and 32° N., or between the mean Isothermic curves of 48° and 52° Fahr.; and that the typhous poison has a fixed local habitation on the globe, is no longer tenable, having been invalidated by Messrs. Ewart, Scriven, and Goodeve, who in the "Indian Annals of Medical Science," have published cases of this distinctive fever.

Attention being awakened to the occasional occurrence at least of this fever, so recently supposed to be peculiar to northern latitudes, and to have no existence in the tropics, it is more than probable that other enquirers in this field of observation have had it in their power to verify the opinions expressed by the Medical officers named above, and now give it unreserved admission into their nomenclature of Indian fevers.

It fell to my lot to publish, in the 5th No. of this Journal, a case proving fatal by perforation, a case the nature of which was established by incontrovertible testimony—that derived from *post-mortem* examination.

I have it now in my power to contribute five cases which have occurred in the Regiment of which I am in Medical charge, and since it is only by thus giving publicity to individual experience, that the question, of the extent to which this distinctive fever prevails amongst our European troops, can be raised, and the observation of others be brought to bear upon it; I need not apologise for again giving prominence to the subject, the more especially as the experience of the last few months, with a wider field of observation, has satisfied me, that it will be found sufficiently prevalent provided its *possible* occurrence be kept in mind, and those symptoms *sought for* upon which its diagnosis is to be established.

But although satisfied upon this point myself, I might have hesitated to attempt to prove my position, if indeed it requiring proving; but for the occurrence of a *second* fatal case—a case not very strongly marked, till the invasion of profuse hæmorrhage from the bowels—proceeded as it had been by a tumid and tympanitic condition of the abdomen; tenderness and gurgling in the right iliac fossa though without diarrhœa; these symptoms—but further observed—occurring during the progress of an insidious adynamic fever presenting other symptoms of *true* typhoid,* led me to form a diagnosis which was verified by *post-mortem* examination.

Should I be writing upon a trite subject—should the existence of this fever be admitted to be sufficiently prevalent; and should it have obtained that unreserved admission into the nomenclature of Indian fevers—which it certainly had not before its existence was demonstrated by Drs. Ewart, Scriven, and Goodeve—should, in fact, the attention of the profession have been generally directed to the occasional occurrence of this distinctive fever, and its existence be admitted, I cannot be blamed for making it the subject of enquiry as relates to this Presidency; inasmuch as no allusion to it has—to my knowledge, with the one exception of the solitary case already alluded to—been made in the journal, which is devoted to the promulgation of the views and opinions of the profession on this side of India.

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* By this expression, it is meant that the case did not merely present symptoms of a *low type* of fever, to which the term *typhoid* is so often applied: but that it was marked by certain distinctive symptoms during life pointing to definite pathological changes which were diagnosed before, and found to be existent after, death, a fever as distinct from any other fever as small-pox is from measles.

The cases which I have had the opportunity of observing, five in number, four of which occurred in *Hospital*, and one in *private* practice, presented the following symptoms.

Fever of a subdued type—intermittent or remittent at the onset—becoming gradually continued, but with distinct afternoon or evening exacerbations, not attended by any great heat of skin, or frequency of pulse, which rarely exceeded 100 beats, marked by early and great prostration, a muddy complexion, apathy of manner, deafness, diarrhœa, (in some cases,) a tense tumid and tympanitic abdomen, with gurgling in right iliac fossa and tenderness, a furred tongue becoming brown and dry, nocturnal delirium, and in two cases an eruption of lenticular rose spots—the fever lasting over 30 days, convalescence being tardy, and abdominal tenderness existing after the remission of the fever.

Each case may be thus briefly recorded:—

Case 1st.

Private Rodgers, age 21 years, H. M.'s 105th Regiment (M. L. I.) was admitted on the 2nd March 1861, ill a week prior to admission with fever, which he described as of irregular intermittent type. On admission looked very poorly, fever considered remittent; on the 7th *epistaxis* occurred. The fever became now *continued* with vertigo, stupor, muttering, delirium and much prostration, with *diarrhœa* and *gurgling in right iliac fossa*. The illness was *very prolonged*, and he was not considered safely convalescent till the 6th of May.

Case 2nd.

Private Bamfield, Æt. 21 years, admitted 23rd August 1861, with fever of continued type. Muscular weakness (although ill only two days) very great. As the case progressed the symptoms noted were *diarrhœa, tenderness in right iliac region*, a few *rose spots* (fading under the pressure of the finger) scattered over the chest; continuance of diarrhœa with *fulness, tension*, and *tympanitic condition* of the *abdomen; deafness, delirium*, and advancing prostration. The case was complicated with an attack of pleuro-pneumonia—it extended over 50 days, convalescence not being established till the 7th of October.

Case 3rd.

Private G. Woods, aged 21 years, admitted 17th August 1861, ill 4 days with headache, 'feverishness' towards evening, malaise and muscular weakness. The fever was indistinct in type, flushes and chills alternating; on the 31st, *diarrhœa*, with *gurgling* and *tenderness* in *right iliac fossa*, was recorded. Tongue furred and *fissured*, pulse 100. September 2nd, tongue *brown* and *dry*, "more abdominal

tenderness, diarrhœa continues," "*no eruption.*" 4th, delirium, diarrhœa, gurgling, and tenderness continued. 6th, tongue *brown* and *dry* with *sordes.* 8th, continuance of fever with evening exacerbations, diarrhœa, &c. From this date he began to mend, the improvement was slow but progressive, and he was not convalescent till the 27th. Duration of fever 34 days.

Case 4th.

Miss ————, aged 12 years, came under my care on the 20th of September, for fever of a subdued type. She had been ailing for some few days with general malaise and occasional pains in the abdomen. There was not much muscular weakness. The case extended over a period of two months, and the following were the leading symptoms.

A persistent *diarrhœa* of *pea-soup-like stools, gurgling in right iliac fossa, a tumid and tympanitic condition* of *the abdomen, tenderness at umbilicus, an eruption* of *rose red spots* (one crop only observed) *on the chest, apathy* of *manner* with *great deafness,* a muddy complexion, transient delirium. The pulse did not exceed 100. The fever was most marked in the evening. The case *extended over* 40 *days*—abdominal tenderness out-lasted the fever, diarrhœa gave place to constipation, and convalescence was very tardy.

Case 5th.

Private Turner, H. M.'s 105 Foot, aged 32 years, was admitted on the 26th November, 1861, with fever. He was subject to ague, and for two days the fever certainly exhibited an intermittent character. It passed, however, into the continued type with evening exacerbations, and was attended with an amount of prostration and muscular weakness, which, together with an expression of countenance indicative of grave illness, at once stamped it with features not pertaining to ordinary continued or continuo-remittent fever.

On the 1st of December *abdominal tenderness* with *gurgling* in right iliac fossa was first recorded. The pulse did not exceed 80, was soft, and without power. The tongue clean, inclining to become dry. The next day (2nd Dec.) a *few rose red spots* were observed upon the chest, and in order to determine whether any fresh spots formed, they were marked with a circle of ink. The following day some additional spots of eruptions were observed, but not again. The abdomen became *tense, rounded, tympanitic,* gurgling in right iliac fossa continued, and tenderness at umbilicus was experienced on palpation; *deafness* also set in, and delirium followed. This latter symptom, however, only lasted two days. The bowels were *constipated,* but the *abdominal tenderness* and *gurgling in right iliac fossa* always existed. The case progressed favourably up to the 20th December when *some blood* was noticed in the evacuations, and the same night he passed "a considerable quantity of blood—partly

fluid and very dark, and partly coagulated. Hæmorrhage returned on the 21st, 42 oz. of blood being measured. He did not rally from the exhaustion caused by so great a drain upon the system, and died on the evening of the 25th Idem or the 30th day of the disease, reckoning from his admission into hospital.

Antopsy 12 *hours after death.* Body much emaciated, tissues exsanguine.

To abridge the report suffice it to write, that the *only* lesions found were those characteristic of the affection, viz., extensive ulcertion of the solitary and agminated glands of the lower portion of the ilium, enlargement of the mesenteric glands, and some enlargement of the spleen.

The ulcers in the lower part of the ilium varied in size, and the centres of many were occupied by dark ecchymosed spots, wherefrom the hæmorrhage had proceeded during life.

The ulcers did not extend beyond the ilio cæcal valve. The small intestines contained no feculence and no blood.

The foregoing is the last and crowning case of the small series, and may claim to be accepted as fully interpreting the pathological significance of the symptoms observed in all the other cases—and which, as a group, present all those symptoms laid down by Jenner, Tweedie, Budd, Watson, and all recent writers on the prevalent fevers of Europe, as those serving to distinguish typhoid, or enteric, from all other fevers.

The importance of the early recognition of this fever and of treating it on principles different from those which guide us in the management of the ordinary fevers (continued and continuo-remittent) of the country, has been forcibly pointed out and insisted upon by Dr. Goodeve, in a Clinical lecture, published in the 11th No. of the "Indian Annals of Medical Science."

I would, however, remark that sufficiently early diagnosis is not always easy.

The cases which I have recorded in three instances commenced as intermittents, and a plan of treatment (I especially allude to the administration of aperients) adopted at the onset, which would not have been employed, had the true nature of the cases been manifest from the first.

But this was not the case, and although since my attention was first directed to the possible occurrence of this fever, I have ever been in the habit of ascertaining the condition of the abdomen and of the alvine discharges in all cases of fever, they (the cases recorded) progressed for a few days

before those symptoms held to be pathognomic of the affection manifested themselves.

I do not intend to enter into an examination of the symptoms which, as a whole, marked the cases. They will be recognised as those held to characterise the affection in Europe, while as regards the pathological lesions they are peculiar to, and distinctive of, the fever under consideration.

But I may be permitted to touch briefly upon the question whether this fever is really *new* amongst us; whether, as held by that astute reasoner and careful observer Dr. Morehead of Bombay, at so comparatively a recent period as 1856 "the typhus, *typhoid*, and relapsing fevers * * were unknown in India," prior to proof of their occasional existence being adduced by Drs. Ewart and Scriven, in 1858 and 1859.

I have gone over the *post-mortem* reports of this Regiment (late the 2nd M. E. L. I.) for 21 years, and I find undoubted evidences of the occasional occurrence of fever attended with the *post-mortem* lesions now held to be truly characteristic of typhoid fever; cases in which ulceration of the ilium is the only lesion recorded as bearing upon the case.

These cases occurred so far back as 1843-44-45 and 48, and although the reports of the cases themselves, that is of the symptoms presented during life, are not in existence, the records of the autopsies leave no doubt upon my mind that they were instances of enteric (typhoid) fever.

But I also think that Dr. Morehead's work contains evidences of the existence of cases of the fever in his own practice.

Take for instance cases 43 and 46 at pages 145 and 155, Vol. I.; cases entered as illustrations of the pathology of remittent fever. In the first it is recorded "the mucous coat of the end of the ilium was of dark red color, the patches of Peyer's glands were red, turgid and prominent, and several of them were in different stages of ulceration"—and in the 2nd case "at the end of the ilium the glands of Peyer were distinct, and there were three or four round ulcers, each the size of split pea," while "the mesenteric glands ranged in size from a pea to a horse bean." Dr. Scriven considers that the "congestive fever of the cold season" of Twining and Martin is typhoid.

There would appear then to be evidence that this fever is not new to us, that its prevalence now is owing to its

existence being acknowledged, and those symptoms upon which the diagnosis is to be formed being sought for.

I am informed by an intelligent Medical subordinate who was lately attached to the Royal Artillery (H. M. British Forces) at St. Thomas' Mount, that several cases occurred, some of which were fatal, and that the Medical officer in charge (recently from England, and to whom this fever was of course familiar,) immediately diagnosed and returned them as typhoid fever.

Why should we be exempt from it in this country? For if, as is held by the most eminent authorities of the day, it is essentially caused by emanations from decomposing organic matter, we have such causes in full operation in India.

The cases which occurred in this Regiment may, it is considered, be fairly traced to a drain which, proceeding from the cook rooms, crosses the Barrack square obliquely, to empty itself into the 'main,' which, in its turn, passes beneath the floor of one of the barrack rooms.

The effluvium from this drain was much complained of by the occupants of that room especially, and *two* of the four cases recorded were admitted from that barrack. Indeed, a third case occurred, which, however, as it did not present such distinctive symptoms as pertain to the other cases, I have not given a place in my list of cases. Still, I believe, it to have been of the same nature.

The state of the drain alluded to, I need scarcely add, has received every attention, and is to be closed up, provision being made for the conservancy of the cook room upon the dry system. The published experience of those members of the profession holding European (and indeed Native) charges upon the extent to which the fever we have been considering prevails amongst the troops in this Presidency, is a desideratum.*

POSTSCRIPT.

Since the foregoing was written the following case has come under my notice, and I append it as illustrative of the points insisted upon in the foregoing remarks.

Abstract of an additional Case—Typhoid Fever.

Private Thacker, H. M. 105th Foot, aged 22 years, of 2¼ years service in India, was admitted (under the care of Dr. Handyside) on the 29th of January, 1862, with fever, which, at the onset, was ap-

* We shall be happy to give publicity to any papers forwarded to us on this subject.—Ed. *M. Q. J.*

parently intermittent in character, but which speedily became "continued," and was marked by early and great prostration; diarrhœa, with a rounded, tense and tympanitic condition of the abdomen, gurgling in right iliac fossa, and tenderness most marked at the umbilicus—a sparse eruption of rose-red spots fading under pressure, but returning on the pressure being removed, and deafness: delirium set in early, and death resulted on the 11th day.

Antopsy revealed the usual lesions of enteric fever, viz., extensive ulceration of the lower part of the ilium, the ulcers being large and their centres occupied by sloughs—hæmorrhage had taken place into the bowel, though no blood had appeared in the stools during life.

The mesenteric glands were much enlarged, and the spleen weighed 14 oz., and was somewhat friable.

This case is the most marked one of the series and its early termination in death may be attributed to the greater activity of the poison imbibed, or to the constitution of the patient favouring a more unhealthy type of ulceration.

Art XVIII.—*Remarks on the Prevalence of Typhoid Fever in the Madras Presidency.* By Assistant Surgeon W. R. Cornish, Secretary to the Principal Inspector General, Madras Medical Department.

In the present number of the *Madras Quarterly Journal of Medical Science*, my friend Mr. Ranking gives the results of his experience regarding the prevalence of enteric fever, in the body of European troops of which he has medical charge, and further offers some valuable remarks on the erroneous views of those Indian pathologists who have denied the existence of this type of fever, within tropical latitudes.

I have very little that is important to add to Mr. Ranking's remarks, concurring with him as I do, most fully in his views; but as I have the means in my official capacity of noting the causes influencing sickness and mortality in all stations occupied by Madras troops, or civil departments of the Government, I take the present opportunity of recording such additional facts, as have come before me, and which tend to corroborate the views of Scriven, Goodeve, Ewart, Ranking, and others, that the distinctive fever to which the name of *typhoid* has been applied by Dr. Jenner, is by no means an uncommon disease in the European population of India.

Hitherto the nomenclature of disease, used in official returns, has rather tended to obscure the satisfactory settlement of the question under consideration. So many febrile affections have been classed together under the heading "*Febris Communis Continua*," that the older tabulated records give no aid in determining the proportion, which fevers of this particular type bear to the more commonly observed continued, remittent, and intermittent forms. These observations do not, however, apply to the revised nosology which, within the last two years, has been adopted by the Army Medical Department, and in which the admissions and mortality from typhoid fever are distinctly shown. The new nomenclature was only brought into use in the official returns of this Presidency from the 1st January 1860, and the analysis of these documents is not at the present moment sufficiently advanced to enable me to offer any accurate statistical data, in illustration of the comparative prevalence of this type of fever.

From other sources, however, I have been enabled to draw some conclusions on the subject. In the official records at my disposal, are the "cases" of all European Military and Civil servants of Government, who absent themselves from duty on account of ill-health, or whose diseases terminate fatally.

These fatal "cases" for a period of twelve years have lately been subjected to close scrutiny, with reference to certain doubtful points in pathology, to which it is unnecessary to refer more particularly in this place. Of the total deaths during the period, I find that 62 were due to "fevers" of the continued or paroxysmal types. *Post-mortem* examinations were not instituted in every case, and there are several in which the symptoms appeared to be of a typhoid character, which have been discarded, as wanting in satisfactory proof of the peculiar pathological phenomena of typhoid fever. But notwithstanding this rejection of imperfect evidence, there are seven cases out of the 62 or 11·2 per cent., which afford indisputable proof of its comparative prevalence.

Short abstracts of the more prominent symptoms and post-mortem appearances in these cases, I shall presently record.

My own individual experience of this form of fever in India, has been limited. Two well marked instances I have notes of. One in a young recruit, recently arrived from England, who had the characteristic, rose-colored spots, and

abdominal symptoms well defined. This patient, after being almost at death's door, was brought through to a tardy convalescence by careful nursing and support.

The other case occurred in a robust young lady, about 20 years of age. The early features of the disease I had no opportunity of watching, but when I saw her about the 14th day, the abdominal symptoms and character of the stools were most marked, and there was considerable bronchial congestion present. The mother of the patient met me one morning with a hopeful expression of face, and informed me that the catamenia had returned rather abundantly. The poor woman had been mistaken as to the source of the hæmorrhage, which it needed only a glance at the sunken face of the patient, and the close stool, to see had been passed from the bowels. She sunk in a few hours, from the exhaustion produced by the intestinal hæmorrhage; a post-mortem examination was not permitted.

The cases which follow, it must be explained, have been condensed from the voluminous reports of the Medical officers who treated the patients. Some of them, from the first, appear to have been rightly diagnosed. In others the true nature of the affection was not recognised.

This, however, can be scarcely wondered at, when the great authorities on Tropical Medicine, have been unanimous in ignoring the existence of typhus, and typhoid fevers in India.

Since attention has been directed to the subject, the occasional occurrence of typhoid fever in this country, has been generally admitted, and especially by those medical men who have the charge of the sick of our European forces. The young recruit, or the young adult of either sex, recently arrived in India, appear to be the readiest victims of the malady, and those Medical officers whose professional labours are connected with these classes of the community, will naturally have the largest experience of it. It is to be hoped, that these imperfect notices will elicit further contributions from those who are qualified to speak authoritatively from past observation.*

No. 1.—185–, Lieut. ———, Æt. 22, 7 years in India, very temperate habits, residing at Kamptee. Complained sick on Feb. 7th 185–, with headache, thirst, languor, and debility. Pain in loins—pulse 110, soft, regular; tongue very red and clean; bowels open; skin warm and dry; no uneasiness in abdomen.

* Vide foot note p. 290.– Ed. *M. Q. J.*

Previous History.—Cannot account for present illness. Has been feeling unwell for the last fortnight, and for three or four days past has felt chilly, and then uncomfortably hot. In the habit of indulging too freely in the use of aperient medicines when in a state of health.

On the 9th there was much weakness and restlessness, with intolerance of light. Tongue had become covered with a shaggy fur, and thirst increased. Tenderness over left hypochondrium and epigastrium, with vomiting of glairy fluid.

On the 11th, the skin cool and moist; pulse 80, of fair strength; less intolerance of light; less thirst; tongue not so red at the tip. Brought up a few clots of blood from the back of the throat.

On the 13th, the tongue was improving; pulse and skin as before: in the evening drank four bottles of soda water, which caused much distension and uneasiness in the abdomen, this passed off in the course of the night; stools loose, feculent.

15*th.*—There was slight bleeding from the nose on the 14th, and again to day. Skin sallow, and conjunctivæ yellowish; sleeps a good deal; tongue moist and red; pulse 95.

16*th.*—Bowels loose, and towards evening passed about three quarts of very dark-brown, bilious, feculent, fluid stool; abdomen soft and not tender on pressure; face shrunken; pulse 120, jerking. Late in the night passed shreds of bright, recently coagulated blood in the stools; tongue dry and getting brown.

17*th.*—Continued to pass blood in the stools, weakness increasing, slight delirium, but is conscious when roused; pulse 120, full, and sometimes intermitting. Died at a quarter to nine A.M., with all the appearances of internal hæmorrhage.

The treatment, in this case, consisted, at first, in mild laxatives and febrifuges, leeches and blister over abdomen; latterly quinine, opium, astringents and wine were freely employed.

Post-mortem appearances 5½ hours after death.

General.—Body muscular; skin sallow; no rigor mortis.

Abdomen not distended with air; a small quantity of clear serum in the peritoneal cavity.

Stomach large; walls thin; mucous membrane congested in a few places; greater curvature appeared to be denuded of mucous membrane.

Small Intestines full of gas; sub-peritoneal coat injected uniformly, with dark blood. No lesion internally until within three inches of the lower end of the ilium, where a raised ulcer—the size of a jacket button—projected from the mucous surface so distinctly, that it was seen and felt like a foreign body through the walls of the intestine. The surface of the ulcer was concave, dark, blackish-green, and seemed to be made up of sloughing solitary

glands and cellular tissue projecting through the mucous membrane. The ilio-cæcal valve was in the same condition all round, and the ulcers projected from it into the colon.

Large Intestines.—Three ulcers similar to the above were found in the caput cæcum ; mesenteric glands adjacent to these points of ulceration enlarged. The mucous membrane of the lower part of the colon, pale, and apparently denuded of epithelium in patches.

Liver healthy.

Spleen large, congested, structure apparently healthy.

Kidneys congested.

Chest.—The thoracic viscera healthy.

Head not examined.

No. 2.—Ensign ———, Æt. 19, 4½ months in India, of stout frame and temperate habits, residing at Mercara.

Admitted on the sick list 18th July; on the evening of the 15th partook of a bottle of bad beer, and the next morning had a bad headache and felt feverish ; an emetic relieved these symptoms ; but on the 17th the headache returned with heat of skin, a purgative was administered without relief to the symptoms. Has now a warm, moist skin, tongue parched, with red edges and a red streak in the middle. Pain and weakness in the back and loins much complained of ; pulse 90, not full ; bilious vomiting in the evening.

Previous History.—Had suffered on two occasions before coming to India from inflammatory attacks of the abdominal viscera, and had been exposed shooting from the 3rd to 7th July, though not in a malarious neighbourhood. Nothing to account for present illness, beyond the disturbance produced by a bad bottle of beer. On the 19th the patient felt relieved, though the stomach continued very irritable. Bowels not moved until evening, and much distended with wind.

20*th.*—Better ; stomach less irritable; still complains of pain in the loins and limbs.

21*st.*—Some uneasiness in the epigastrium on pressure ; tongue dry and furred ; dozing a good deal in the day.

23*rd.*—No uneasiness in epigastrium ; passed a sleepless night ; tongue dry ; purged four times in the night.

24*th.*—Tongue brown in the centre ; skin soft and cool ; uneasiness again in the epigastrium ; pain and distension of the abdomen ; liquid dark colored stools.

25*th.*—Tongue brown, but not so dry ; pulse 80, soft ; sordes on the lips and teeth ; has pain in passing urine.

26*th.*—Bowels required an enema to relieve them ; less uneasiness about the bladder.

27*th.*—Weakness more marked ; dozes a good deal.

28*th.*—Ideas confused, scarcely amounting to delirium ; when questioned says he is quite well ; skin moist, cool ; sordes about the teeth ; a peculiar indescribable smell about the patient ; very oppressive. Wandered a good deal towards evening.

29*th.*—Two copious liquid stools, almost black, very offensive, frequent purging of the same kind throughout the day.

30*th.*—Stools not so frequent, but of the same character as before ; low delirium, and no improvement in the symptoms.

31*st.*—Stools mixed with blood ; is sensible ; does not complain of any pain ; vomited greenish bile.

1*st August*, 3 A. M.—The breathing got hurried, became unconscious ; bloody fluid draining from the bowels ; died quietly at 10 A. M.

Post-mortem appearances 6 hours after death.

Skin muddy yellow color.

Head.—Brain and membranes healthy, a drachm of serum in lateral ventricles.

Thorax.—Organs healthy.

Abdomen.—Old adhesions connecting intestines to posterior surface of left lobe of liver, evidently the result of former inflammatory disease.

Stomach.—Mucous membrane presented several patches of a dingy red color.

Small Intestines.—Duodenum considerably injected with dark colored blood. The lower part of the mucous coat of ilium was congested and softened ; several patches of ulceration were found with a little dark clotted blood on the abraded surfaces.

Large Intestines.—Considerable injection of a dingy red.

Liver healthy. *Spleen* congested. *Kidneys* healthy.

No. 3.—Lieut. ———, Æt. 22, one year in India, spare habit and very abstemious in his mode of living, residing at Saugor. Reported sick on the 3rd September 185-, with pains in his limbs, which got better on the 7th, but was again placed on the sick list on the 8th.

History.—Had contracted gonorrhœa some months before, and, the disease being unusually obstinate, was sent away for a change. Returned to Saugor on the 31st July better, but gonorrhœa still upon him.

Present Condition.—Still has gonorrhœa, debility, pains in the limbs, and cough ; bowels regular ; skin cool.

On the 12th complained of sore throat, restlessness ; had a quick pulse and furred tongue ; warm skin, perspiring ; looseness of the bowels.

14*th.*—Some dry heat of skin ; quick pulse ; flushing of face, suffusion of eyes, and restlessness ; giddiness whenever he moves ; pain in the left epigastric region increased by pressure ; pulse 104.

16*th.*—Bears pressure on the epigastrium better; stools loose, bilious, frequent; tongue red and moist; skin frequently hot.

17*th.*—Was violently sweated by taking Warburg's tincture at noon; some febrile disturbance again evident; difficulty in passing urine, which was drawn off by the catheter.

18*th.*—Tongue dry and getting brown; ringing in the ears; pulse 94, does not complain of pain, but feels very giddy if he attempts to sit up; motions loose, feculent, dark colored.

19*th.*—Dozed a good deal, passed a quiet night, some muttering, tongue dry and brown; took more of Warburg's tincture, which produced free perspiration; some tenderness on pressure over the epigastrium.

20*th.*—Deafness, singing in the ears; sordes on teeth; sleeps much and mutters to himself when in a dozing state.

21*st.*—Tenderness in right iliac region.

22*nd.*—Passed a large quantity of blood per anum, some of it coagulated and having a putrid odour; tenderness of the abdomen; pulse weak, 110 to 120, very low, and delirious at times in the day.

23*rd.*—Sensible and collected, but very weak; tongue dry and brown; complains much of tenderness of the abdomen on pressure; motions loose, but feculent.

24*th.*—Blood in stools again to-day; tongue black; skin peeling off the lips; abdomen tender.

25*th.*—Purged ten times in the night, clots of blood, and bloody serum; pain chiefly felt in the left pubic region; abdomen tumid, and apparently distended with flatus.

26*th.*—Pain from abdominal distension, the dry epithelium of the tongue peeling off. One motion in the evening followed by bloody fluid; sleeps much, and wanders a good deal.

27*th.*—Much the same; had two loose feculent motions, no blood.

28*th.*—Weaker; tongue cracking, moister; at 10 A. M. had a copious feculent stool, followed by tremors and convulsive motions of the lower jaw; purged about every 10 minutes and fell into a state of syncope, from which he was temporarily roused by stimulants. Shortly before death complained of pain in the head. Died at 3½ P. M. perfectly sensible to the last.

Post-mortem appearances 16 *hours after death.*

Abdomen.—Peritoneum congested and bearing marks of inflammatory action at the lower portion of the abdomen. Portions of the small intestines united by loose bands of recently exuded lymph; some serous fluid in peritoneal cavity; mucous coats of lower part of small intestine and colon bearing marks of congestion and inflammation.

Other organs healthy.

Brain and membranes healthy.

The Superintending Surgeon noted of this case—"The diagnostic symptoms were obscure and unsatisfactory at the period of my first visit, viz., 14th September. There was an early tendency to delirium and picking of the bed-clothes, at the same time sordes had accumulated about the teeth, gums, and tongue. In short such a state was observable as in Europe would be pronounced to have been one strongly characteristic of "typhus."

It is to be regretted that the particular appearances of the mucous membrane of the intestinal canal were not more fully recorded in this case. The quantity of blood passed would indicate distinct lesion of structure, and there can be but little doubt regarding the true nature of the case, viewing it through the advanced light which modern pathology has given us.

No. 4.—Captain ———, Æt. 35, 16 years resident in India, habits abstemious, residing at Pegu. Reported sick 9th April 185–, having suffered for several days from "headache," loss of appetite, and uneasy griping sensation in the bowels, which are irregular, sometimes costive, and at others relaxed.

Present Condition.—Head hot; skin warm and dry; pulse accelerated; tongue much furred; took a purgative which acted freely.

10*th.*—A disturbed restless night, heat of scalp and pain in the head; abdomen less tender; pulse 80; tongue furred.

12*th.*—Tongue clean and red at the tip; bowels loose, motions feculent; less headache; is weak and low.

14*th.*—Stools green and slimy; no distinct pyrexia.

15*th.*—Complains of great weakness; tongue furred at base, but red and clean at the tip; stools fluid, brown color.

16*th.*—Bowels frequently moved; slept badly; very low and weak.

17*th.*—The quinine which he has been taking appears to irritate the bowels; tongue dry; stools watery.

19*th.*—Much the same, very weak; seen in consultation by another Medical officer who thought the liver to be affected, there being some tenderness over right hypochondrium.

20*th.*—Tongue dry and coated with brown fur, except at tip where it is red and clean; no tenderness on pressure over the belly, but the stools to day contained some specks of blood.

22*nd.*—Stools dark, fœtid, reddish fluid, and in the evening passed a clot of blood; pulse 83, soft.

24*th.*—Sleeps a good deal; deafness; weakness increasing; tongue dry and brown in the centre; two stools, semi-fluid, containing slime, and small pieces of white membrane.

26*th.*—Getting evidently weaker.

27*th.*—Not quite sensible, and with difficulty comprehends what is said to him; at 5 P. M. had something like a convulsive fit, and died at 8 P. M.

Post-mortem appearances 10 *hours after death.*

Head not examined. *Thorax.*—Organs all healthy.

Abdomen—Liver perfectly healthy. Stomach, duodenum, and jejunum healthy. The lower three feet of the ilium much congested, and in the lower two feet of that bowel were numerous ulcers exposing the muscular coat. The ulcers were for the most part oval in shape, and of various sizes from that of a split pea to one inch or more in length, edges raised and everted, and mucous membrane immediately around thickened. Near the ilio-cæcal valve the ulcers had run one into another, leaving only small septa of mucous membrane; mucous coat of the colon and cæcum much congested, but in no place ulcerated.

Kidneys healthy. *Spleen* firm, congested, nearly double its natural size.

The treatment in this case was varied. Mercurial alteratives, salines, quinine (which always made the patient worse) and later, when the liver was thought to be affected, mercury, in quantities sufficient to induce its characteristic effects upon the system; wine, stimulants, and nourishment were also employed.

No. 5.—Lieut. ———, Æt. 25, 5 years in India, habits somewhat free, residing at Cannanore. 185–, February 7th, admitted on the sick list with pains in the limbs, nausea, feeling of debility and feverishness. Tongue furred; skin hot and dry; pulse quickened and full.

History.—Ill for three days, and took a dose of oil, during the operation of which he fainted, and the doctor was then called in.

8*th.*—Better; tongue and breath very foul; stools scanty, watery, and frequent.

9*th.*—Severe pain in left hypochondrium from flatus; no particular fulness in abdomen; pulse natural; stools still loose: feels faint on moving away from his couch.

10*th.*—No change beyond relief from pain in the side.

11*th.*—Abdomen puffy; pulse 84, regular; tongue furred but red at the extremity; very languid and feeble, more consistence in the stools.

12*th.*—Stools liquid, offensive.

14*th.*—Dozes a good deal, mutters in his sleep, mind confused, and rambles in his talk till roused by close questioning.

15*th.*—Weaker, slight dyspnœa, uneasiness at bottom of belly; abdomen tympanitic.

16*th.*—Rambling and incoherent, except when roused; stools loose; tongue dry and brown; skin dry and generally hot; pulse 82.

17*th.*—Stools passed in bed unconsciously; sordes about the mouth; rallied in the day time; Warburg's tincture administered, followed by profuse perspiration and heavy dozing sleep.

18*th.*—More heat of skin; pulse 112; mind wandering; stools passed in bed, very fœtid; urine drawn off by catheter. Pulse got up to 120 in evening, very weak and thready; features pinched and shrunken.

19*th.*—Sinking all through the night; died at 8½ A. M.

Post-mortem appearances 6 hours after death.

Bodily confirmation robust, muscles finely developed.

Head.—Some serum at the base of the brain.

Thorax.—The posterior portion of both lungs congested.

Heart.—Flabby.

Abdomen—Stomach—Mucous membranes congested and softened, and dark-red. Duodenum and upper portion of jejunum in a similar state, and coated with a shiny yellowish, or greenish brown secretion. *Ilium* and first portion of the *colon* much congested and softened, and ulceration observed about the ilio-cæcal valve. Intestines full of air.

Liver and *Spleen* congested, but healthy in structure.

Blood dark, thin and fluid; no coagula found in the heart or elsewhere.

Fever diagnosed by medical attendant to be of "typhoid type, with inflammation of lining membrane of the small intestines." It is headed "Febris Typhus."

(The use of Warburg's tincture in this case appears to have had a prejudicial effect. It produced on most occasions the characteristic sweating, but, instead of relieving the patient, it only seemed to weaken the powers of life and hasten the fatal termination.)

No. 6.—Lieut. ———, Æt. 19, 3 years in India, of temperate habits and delicate strumous constitution. Admitted on the sick report March 29th, 185–, at Nagode, Central India, suffering from diarrhœa and feverishness, which he has complained of for some days past, and which symptoms appear to be aggravated by a recent indiscretion in diet. Skin hot and moist; pulse accelerated; tongue coated with a yellow fur.

31*st.*—Feels better, but weak; the lips are sore; tongue still foul; two scanty loose motions.

April 1*st.*—Delirious in the night; pulse 102; tongue dry and covered with brown fur; scanty loose motions; slight epistaxis.

2*nd.*—Restless night; tongue and lips covered with brown sordes; stools loose, watery, passed involuntarily; belly tympanitic; dozed at intervals in the day.

3*rd.*—Bleeding again from the nose very considerable; no im-

provement in tongue; mind wandering; very drowsy ; stools loose and involuntary.

4th.—More rational and collected in the morning; stools loose of reddish brown colour; tongue cleaning; pulse 103; skin cool and natural.

5th.—Tongue dry; stools liquid, but is conscious of passing them and calls for the bed pan; sleeps a good deal.

6th.—More tendency to sleep; abdomen soft; stools loose; mind clearer; pulse 110.

8th—Improved ; tongue clean and moist ; about midday complained of præcordial oppression ; pulse 120 ; respiration 36 per minute, labored ; relieved by stimulants and mustard poultice.

9th.—Restless night ; tongue and mouth loaded again with sordes.

10th.—Pulse weaker, 120 ; respiration 40 ; moaning delirium.

11th.—Died at 8 A. M.

Post-mortem examination.—Body thin, chest narrow.

Thorax.—Lungs congested ; incipient deposition of tubercles in apices of both ; some fluid in pericardium ; heart pale and flabby.

Liver bore marks of an old attack of hepatitis, in discoloration of investing capsule in patches.

Abdomen.—Mucous membrane of stomach congested in patches. The duodenum and jejunum presented no unusual appearance, but the ilium was in a congested condition in the greater part of its length, no ulceration of the mucous membrane was observed. Large intestines darker than usual.

Head ; more fluid than natural in the ventricles of the brain.

This case appears to have been most judiciously treated, stimulants and nourishment, with medicines calculated to allay the irritation of the bowels were chiefly employed, a dose of quinine given when the symptoms had improved, appeared to do him harm. The medical attendants recognized the case as one of typhoid fever, similar to that disease as met with in Europe.

No. 7.—Ensign.——Æt. 20, one year in India, habits temperate, residing in Madras. Reported sick 12th June 186–, when he was found by his Medical attendant to be reduced in flesh, pale, with a flush on the cheeks and with a worn and anxious expression of features. Skin warm and moist ; pulse 92, weak ; tongue red at the edges, foul in the centre and creamy ; frontal headache ; heavy and drowsy ; extreme thirst ; bowels very loose, motions large, bilious and watery.

History.—Enjoyed fair health until about 15 days since, when he caught a severe cold, after exertion in a plunge bath, and

dressing himself while exposed to a strong wind. This was followed by some pain and sense of constriction about the chest, and relaxation of the bowels. Continued to pass from two to six watery motions daily for 14 days before he took advice, when he applied to a druggist who gave him a rhubarb draught, and astringent mixture.

13*th.*—Motions frequent; obscure abdominal tenderness; thirst; drowsiness.

14*th.*—Alternate flushings and chills; motions frequent, watery, loose, and slightly bilious; slight tendency to wander when left alone; delirium more marked towards evening; tongue dry; sordes on the teeth.

15*th.*—Passed a better night; mind collected; very weak and low; tongue still dry.

16*th.*—Feverish all day; low delirium; abdominal tenderness more marked, with some tendency to tympanitic distension; motions free, but still watery; tongue brown and dry.

17*th.*—A restless night; pulse 106; tympanitis increasing; delirium more persistent. Began to sink about midnight, and died at 5 A. M. on the 18th.

Post-mortem appearances 11 *hours after death.*

Body emaciated; tympanitic distension of abdomen enormous; blood flowing from mouth and nostrils.

Chest.—Lungs healthy; posterior lobes gorged with blood, evidently the effect of *post-mortem* gravitation; heart healthy.

Abdomen.—Stomach, small, and great intestines enormously inflated with gas.

Stomach.—The villous coat in a state of extreme congestion, in some spots almost black, contained 3¾ ozs. of dark blood, which had evidently exuded from the distended vessels; ulceration commencing at several points.

Jejunum healthy, but congested.

Ilium diseased throughout. "Peyer's patches" showing characteristic ulceration of typhoid fever.

Large Intestines.—A few congested spots in the descending colon, otherwise healthy.

Liver, *Spleen* and *Kidneys* healthy.

Head not examined.

Although the records of the Medical Department show very conclusively that enteric fever has always been known in India, it is only within the last five years, that the disease has been commonly met with, at least in the Madras Presidency, and the weight of evidence goes to show that there was a direct importatiom of its germs, about the period when large numbers of European troops arrived in the end of the year 1857 to assist in quelling the mutiny aud rebellion.

Supposing this to be the case it is not a solitary instance of the introduction of a zymotic disease foreign to our soil. In 1860, a ship arrived from England with soldiers' wives and children on board, the latter having suffered very severely on the voyage from measles and scarlatina. The scarlatina had ceased on board for some weeks before the voyage ended, but on a portion of the passengers reaching Bangalore, the disease soon broke out as an epidemic amongst the European children of the station, and I have been informed some of the cases terminated fatally.

At St. Thomas' Mount, almost immediately after the arrival of a Troop and Battery of Royal Artillery, typhoid fever began to prevail, and four fatal cases occurred within the first three or four months of arrival. Assistant-Surgeon Taylor's report for this period is not at hand to refer to, but from collateral evidence I gather that the type of fever was so well marked, as to lead to its immediate recognition by that gentleman. In this epidemic the characteristic eruption, was observed in most of the cases.

In the official year 1858-59, the medical officer of the Madras Artillery at St. Thomas' Mount remarked that "several cases of the continued form of fever proved exceedingly difficult to manage, from becoming typhoid, and "complicated with cerebral disturbance, congestion of lungs, "and, in nearly every one, great derangement of the bowels." He mentions one case in particular where the patient recovered, after suffering a long time from low typhoid symptoms with diarrhœa, passing putrid watery stools, and while convalescing from this attack, acute congestion of the spleen came on, afterwards pneumonia of the right lung, hepatitis, and dysentery.

One fatal case is recorded. A gunner, Æt. 23 years, four months in India. Admitted 14th Feb. 1858. Died 1st April. Febrile symptoms at first persistent, and ten days after admission was seized with severe pain in the right iliac region, which, subsequently, extended along the course of the colon.

Dissection showed congestion of the liver and spleen, ulceration of the lower two feet of the ilium, with sloughing and perforation of the bowel about the cæcum. Large intestine ulcerated in its upper part, and much congested throughout.

In the same official year Surgeon Major Dassauville of the Royal Artillery, and in charge of that arm of the service

at St. Thomas' Mount, brought to notice that within a few months, several bad cases of typhoid fever had come under his observation, and that four of these had proved fatal. In the beginning of 1859 the disease was not confined to the soldiers in barracks. Dr. Kellie, the Superintending Surgeon, in reporting on the prevalence of typhoid fever, noticed the case of a lady, "whose recovery for some days had been despaired of," also an officer of the Madras Artillery, then "dangerously ill" from the same disease. As usual, in epidemics of this nature, the local nuisances of the station were abundant, in the shape of foul drains and cesspools in the neighbourhood of barracks and hospitals. On a representation of the circumstances to Government, the Superintending Surgeon was called upon to submit without delay, "A state-"ment of the measures of sanitary reform, requiring the "sanction of Government, and which may be deemed requi-"site to preserve the general health of the Cantonment." This was done, and most of the suggested improvements have since been carried out. I gather, however, from Surgeon Major Ford, the present Medical officer of Artillery at St. Thomas' Mount, that there is a tendency in many of the fever cases, especially those which occur in recruits, or new arrivals, to assume the typhoid character.

The next evidence which I have to adduce in support of the opinion that there was a direct importation of typhoid fever, with the troops coming to this Presidency in the latter part of the official year 1857-58, is obtained from the Medical returns and reports of the Hyderabad Subsidiary Force for that period.

The 1st Battalion H. M. 1st Royals landed at Masulipatam in Nov. 1857, and marched for Secunderabad, a fine body of young men nearly 1,200 strong, where the corps arrived in the following month. It was quartered in the old Infantry Barracks, which had only been vacated a few weeks by the 3rd Madras European Regt.—a corps which had been very healthy in this locality for a period of three years, and so far as I can ascertain had no well marked cases of typhoid fever, during that time. Immediately after the arrival of the 1st Royals cases of a low form of fever, attended with congestion of the brain or lungs, parched furred tongue, rapid pulse and tremor of the muscles, were noticed amongst the young soldiers; and in the first three months, four of these cases terminated fatally. The Superintending Surgeon in his annual report, stated that the fever, in his opinion, was

not of malarious origin, and that he had advised the Medical officers to treat it, in the early stages, by saline diaphoretics, antimonials; &c., attending carefully to local complications when they arose, and in the latter stages to support liberally, with beef-tea, chicken-soup, and wine. The use of quinine in these cases, he considered, was absolutely injurious.

No cases of this type of fever, it is observed, were seen amongst the older and seasoned Artillery men quartered on the high ground, and the 12th Lancers in the new barracks at Trimulgherry were almost free from it—only two or three cases coming under observation.

The report of the Medical officer of the Regt. with reference to this period, is not at hand to refer to. It doubtless enters more fully into the characteristic peculiarities of the prevailing fever.

In the following year 1858-59, Surgeon Hearn remarks that there were 153 admissions from "continued" fever, and 13 deaths.

This is an unusually high death rate for Indian fevers which, on an average of many years, does not amount to more than one per cent. in the European troops of this Presidency.

Bearing in mind, however, the higher mortality which typhoid fever causes, in connection with the Medical officer's remark in his annual report, that "many of the cases were "complicated with great determination to the cerebral or ab- "dominal viscera, and from an early stage had a tendency to "assume a typhoid form," we see at once that the disease was something more than the simple "febricula," which usually goes to swell the columns allotted to "Febris Com. Cont.," and that there is good reason for supposing it to have been true typhoid. The year 1858-59 will long be remarkable in the annals of the 1st Bat. H. M.'s 1st Royals, for its great mortality, from malignant dysentery, typhoid fevers, and suppurative inflamation of the liver. In this period, something like 10 per cent. of the corps, succumbed to the diseases in question.

Mr. Cole, then Superintending Surgeon of the H. S. Force, in his annual report, remarked, "there was a prone- "ness to a typhoid form of fever with cerebral congestion "synchronously with the dysentery, and it appeared as if "there was a relation in the etiology of the two, for the "affection of the bowels, after a brief inflammatory stage, "ran rapidly into an adynamic form, with gangrenous dege- "neration of the intestinal tissues."

The following observations are quoted here as tending to throw much light upon the diffusion of typhoid fever and malignant dysentery amongst the troops quartered in the old Infantry barracks at Secunderabad.

"The old privies were positively pestiferous ; the buildings and their neighbourhood were sodden and saturated with the foul imbibitions of a long period of years, and emitted most offensive odours."

Mr. Cole "felt confident that the resort of men affected with dysentery to the foul privies generated *fomites*, whence the disease spread to non-affected individuals, both from the foulness of the atmosphere engendered, as well as by a direct contagion through the means of the morbid alvine discharges which must have soiled the seats."

These remarks, from what we know of the etiology of typhoid fever, apply with equal force to its mode of propagation.

The objectionable privies referred to, were razed to the ground in 1858, and a dry system of conservancy introduced. The result has been so far satisfactory. In the returns of H. M.'s 17th Lancers for 1861, which corps now occupies the barracks in question, I observe that the admissions from dysentery are less in proportion, than in any other body of European troops at the same station, and the mortality is also very much below the average. In the same period there was only one case of typhoid fever in the corps, which, however, proved fatal.

The third instance which may be adduced, to show the liability of newly arrived troops to suffer from typhoid fever, is derived from the official returns of H. M.'s 44th Regiment, which arrived at Fort St. George, from England, late in the year 1857. The men suffered much from fever during the first few months. Most of the cases were mild, but others were 20, 30, 40, or 50 days in hospital. There were 518 admissions in the first five months, under the head "Febris Com. Continua," but only two deaths, which would seem to show that the type of fever in this instance must have been unusually mild.

One of the fatal cases appears to have been well marked Typhoid, judging from the following particulars.

A delicate lad, Æt. 20, five months in India. On admission had the ordinary symptoms of continued fever. In two or three days the acute febrile symptoms subsided, but the depression and muscular debility continued, and the alvine discharges became semi-fluid, and dark colored.

From this period the symptoms were entirely typhoid. Sordes on the teeth and gums, low muttering delirium, and subsultus tendinum set in a few days before the fatal termination.

The only *post-mortem* appearances worthy of note were a number of spots of superficial ulceration in the lower part of the ilium, and also a few spots in the cæcum and colon "which appeared not unlike small-pox pustules."

The Fort St. George barracks have been very free from typhoid fever since increased accommodation has been afforded, and freer circulation of air permitted by the demolition of the high wall on the sea face of the fort. In December 1861 two cases occurred, for the following notes of which I am indebted to Dr. Barclay, H. M.'s 43rd L. I., who has kindly permitted me to make use of them.

Dr. Barclay remarks as to the probable cause of these cases. "They occurred at the very healthiest period of the "year, and when no foul air from the native city, can by "any possibility get into the Fort, I put them down to the "effluvium from the Black-town drain, which runs into the "sea at the north-east angle of the Fort."

Private Joshua Horrox, H. M.'s 43rd Light Infantry, Disease Febris Typhoides.

An English labourer, aged 24, total service three years, of which 13 months had been in India; a slightly made and delicate looking lad, of rather strumous appearance, with light brown hair, blue eyes, and a fair complexion, subject, since his arrival in India, to febrile attacks; of temperate habits, was admitted into the Regimental hospital on the 4th November, 1861, with symptoms which at first appeared to be those of the simple continued fever, from the effects of climate, which is common at Madras. He complained of having suffered from malaise since the 27th of the previous month, but he had not felt so ill as to think it necessary to report himself sick until the morning of his admission. For a few days after admission he improved steadily, and on the fourth day he seemed to be fairly convalescent; but on the fifth day a change for the worse took place, the headache returning, the skin becoming hot and dry, the pulse frequent, and the tongue rather dry and coated with a brownish fur; his bowels, however, continued regular. Next day (10th Nov.) the surface was moist, but the pulse had increased in frequency, the tongue had become more dry, his manner had become restless and startled, and he had become unable to sleep.

On the 11th and 12th he continued in much the same state, his pulse, however, becoming more frequent (120), his headache more severe, and his tongue more dry.

On the 13th the headache was easier, (two leeches having been

applied to the temples the night before) but his pulse continued of the same frequency, his tongue had become more brown, he had had two loose stools, and there was obvious tenderness of the abdomen, more particularly in the iliac regions and along the right side generally. He continued unable to sleep.

On the 14th he was reported to have become delirious for the first time during the previous night. His tongue had become more brown and dry, and sordes had collected on his teeth. The skin was moist, but the temperature of the surface continued high, and there was a flush on the cheeks. His pulse was 120, sharp and weak. The abdomen was not tender in the morning, but during the day it became so and tympanitic, and the urine had to be drawn off by the catheter in the evening, (except on the 18th this had to be done twice daily during the remainder of his life.)

On the 15th his pulse had risen to 132. Pervigilum continued. His conjunctivæ had become of a dingy red colour. He showed great acuteness of hearing and vision, the slightest sound or motion in the ward attracting his attention; and his nervous system generally was obviously in an exceedingly irritable state. He was confused when spoken to, and could not be made to protrude his tongue, which was now perfectly dry, cracked, and nearly black. His bowels had been opened by an enema, and there was now less distension of the abdomen, which, however, was still tender. He had dribbling of urine during the afternoon.

On the 16th his pulse was 125, weak and compressible. The sordes had increased on his teeth, lips, and tongue. There was constant restlessness and muttering delirium, with trembling of the muscles, grasping at imaginary objects, and picking of the bed-clothes. His abdomen was distended and tender on pressure at the sides. Scarcely any feculence was passed with the enemata administered.

On the 17th he was reported to have slept for two hours during the night, and he was in a drowsy state at the morning visit, but easily disturbed by the slightest noise. His pulse had fallen to 120, but was smaller and more compressible. His tongue continued dry and cracked; his teeth and lips covered with sordes, and his abdomen tympanitic and tender. His bowels had not been opened. He slept a good deal during the day, and was several times free from incoherence on awaking. He passed his urine freely in the evening, and during the night between the 17th and the 18th, he had a tolerably copious stool (thin and dark) which was not passed involuntarily.

On the 18th he was reported to have slept a good deal during the previous night, and his appearance was considerably improved. His pulse was 115, weak, and compressible, and easily put up by the slightest exertion. There was some moisture at the tip and edges of the tongue. The distension of the abdomen had nearly

disappeared, and over the abdomen and chest an eruption of a dull red colour had made its appearance in minute spots arranged in irregular lines so as to resemble somewhat the effects of scratching. It did not disappear on pressure. He had three loose dark coloured stools, during the day, and passed his urine freely and repeatedly ; a large bed-sore threatened to form over the sacrum.

On the 19th, his expression continued better, but in every other respect the favourable appearances of the day before had disappeared. He had had no sleep, and had been restless and uneasy during the night. His pulse had risen to 132, and was weak and compressible. His tongue was again perfectly dry ; his skin also was dry and harsh. The eruption on the chest and abdomen continued. During the day the belly became tumid and tender, but there was no more purging ; his pulse rose to 138 and became much weaker. The dribbling of urine returned ; and his pupils became dilated. During the night he did not sleep, and on the morning of the 20th he was evidently sinking fast. His pulse was about 150, but so weak that it could scarcely be counted, his abdomen tense and tympanitic, the eruption continuing ; his pupils of natural size, his tongue and skin as formerly described. Three ounces of dark coloured and fetid urine were drawn off by the catheter. He continued to sink gradually during the day, and died at 3-30 P. M.

"*Sectio Cadaveris*" 17 hours after death. Rigor mortis slight. Some discoloration posteriorly from gravitation, and on the iliac regions from decomposition.

Head.—Numerous bleeding points visible on the separation of the calvarium. Veins on the surface of the brain engorged. Slight opacity of the arachnoid posteriorly. A small patch of organised lymph in the upper and inner surface of the left hemisphere about its middle. Substance of brain rather hard, its colour natural.

Thorax.—Both lungs congested posteriorly from gravitation, but otherwise healthy. Substance of heart rather pale. Valves healthy. Both sides nearly empty.

Abdomen.—Liver of natural size ; its section rather pale, as if from an increase of the areolar tissue. Gall bladder distended by very thin watery bile of a pale orange colour ; ducts healthy ; pancreas healthy ; spleen much congested and three times the natural size ; kidneys much congested, especially the right, but in other respects perfectly healthy. Mesenteric glands enlarged and congested ; mucous coat of stomach congested throughout. Upper part of small intestine perfectly healthy. Towards the lower end of the jejunum a few irregularly-shaped patches of small size were enlarged and prominent from deposition, but free from ulceration. Throughout the ilium the characteristic affection of Peyer's patches was most distinct ; in the upper part of the intestine they were merely enlarged and prominent ; in the

middle portion they were slightly ulcerated, and in the lower end, where they varied from an inch and a half to two inches in length, they were ulcerated throughout, and in a few instances contained in the centre small sloughs. Between the patches at the lower end of the ilium the solitary glands were extensively ulcerated, so that the intestine presented a honey-combed appearance. The cæcum was healthy, but a similar honey-combed appearance, probably from ulceration of the solitary follicles, extended over the ascending colon; these small ulcers were all superficial.

Case 2.—Private James Wheeler, aged 22, total service 4 years, of which in India, $3\frac{10}{12}$ years. An Englishman, an agricultural labourer, height 5 feet 8 in., brown hair and grey eyes, fresh complexion, moderately stout, rather delicate looking, temperate habits, generally healthy. Was admitted on 16th December, with slight febrile symptoms and diarrhœa, having been taken ill on the 14th. He had considerable tenderness on pressure in right iliac region, and up to false ribs on same side. The diarrhœa continued, and the febrile symptoms increased, there being always an exacerbation of them in the afternoon. He slept rarely, sometimes not at all. Number of stools from 3 to 5 daily; they were dark coloured and watery; diarrhœa was checked by the 20th, and pulse had fallen from 100 to 80, but abdomen continued tympanitic and tender, and gurgling continued in iliac fossa. White fur on centre of tongue, its sides, and tip red.

Diarrhœa returned on 25th, and fever increased; skin moist but clammy.

On 26th an eruption was observed on left side of abdomen in minute red spots not elevated, seen through the skin apparently, the colour disappearing on pressure; the purging ceased.

On 28th two or three more distinct rose spots, from which the colour disappeared on pressure, appeared above the ant. superior spinous process of the ilium on the left side.

On 29th the usual febrile exacerbation in the evening was wanting; tongue clean, bowels constipated.

On 31st eruption fading.

On 3rd January a return of fever in the afternoon, and symptoms of incipient pneumonia in lower lobe of right lung.

On 5th January much better, having perspired freely during the night; pulse in the morning 66, urine examined, quantity natural, colour rather high, Sp. gr. 1,020, reaction slightly acid.

From this date to 15th had occasional exacerbations in the afternoon, perspiring at night, and complained of pain below edge of right false rib.

After 15th suffered only from debility, which gradually disappeared; was discharged quite well on 7th Feby.

Treatment.—Stimulants. Nourishment (beef, tea, milk, &c.) hydrochloric acid, salines, opiates, alterative, doses of blue pill, and ipecacuanha, leeches, fomentation, and one blister to right side of abdomen, latterly quinine.

It will be observed from a perusal of the brief abstracts of the cases I have selected to illustrate the prevalence of typhoid fever in India, that in none of them, with the exception of Dr. Barclay's cases, is mention made of the rose-colored papular eruption, which usually is seen to appear from the seventh to the fourteenth day of the disease.

In truth, considering that many of these cases were considered to be merely "typhoid remittents," it does not seem to have occurred to the Medical attendants to look for the eruption, and supposing it to have been present, it might have been, and no doubt often is, confounded with mosquito and flea bites. Dr. Barclay is of opinion that the rash is not unfrequently altogether wanting in the typhoid fevers of this country. In the case No. 7, which was under the joint care of Drs. Maclean and Barclay, no eruption was detected, although its appearance was carefully watched for, from day to day, and it is needless to say that had it been present at any period of the case, it would not have escaped the notice of such careful and discriminating observers.

It is to be assumed therefore, that the typhoid poison may manifest its presence in the system, occasionally at least, without the development of the characteristic eruption. It is no doubt present in the majority of cases, and to be detected, especially over the chest, back, and abdomen, if carefully looked for, but its absence need not affect the diagnosis, supposing the more prominent abdominal symptoms to be well marked.

"Typhoid fever," says Dr. Murchison,* "is pre-eminently "a disease of childhood and adolescence. Less than one "seventh of the cases of typhoid are above thirty years of "age. Typhus and relapsing fevers exhibit no such predi- "lection for youth; of typhus one half, and of relapsing "fever one third, of the cases are above thirty."

Dr. William Budd of Bristol, one of the greatest living authorities on this type of fever, is of opinion that a person who has once had the disease is thereby protected from a second attack, in the same way that he escapes a second

* Medico-Chirurgical Transactions, Vol. xli., page 301.

attack of scarlet fever, small-pox, measles, &c. He may not be proof against the poisons of relapsing, typhus, or intermittent fevers, but as a rule, will never again be amenable to the influence of the typhoid poison.

The weight of evidence goes to prove that the poison of typhoid fever is of a specific nature, and that it can only reproduce itself, and that it is not capable of giving rise to typhus, or any other kind of fever. Consideration of all these circumstances leads to the inference that the view I have taken with reference to the unusual prevalence of the disease in 1857-58 and subsequent year, being due to the direct importation of fresh germs, with the large body of European troops, which arrived about that period, is at least probable, and, if accepted, will in a great measure explain the increased death rate, shewn in the official army returns of the period, under the head of "Fevers."

The typhoid poison, whatever it may consist of, has, I think, a tendency to lose its virulence in tropical latitudes. It flourishes best in temperate climes, such as England and France. In these countries it is invariably more prevalent in the autumnal season, and especially in those seasons remarkable for their high temperature.*

The fierce and scorching heat of an Indian summer appears to be inimical to its progress, for we find in most of the instances brought to notice, that the cases occurred either in the cold or rainy seasons.

The causes influencing the production of typhoid, are still obscure. Greater clearness and precision of observation are wanting to elucidate its actual mode of propagation. Murchison thinks that overcrowding, with deficient ventilation and destitution, are a sufficient combination of untoward circumstances to generate *de novo* the poison of *typhus*. Miss Nightingale† declares that she has *smelt* the poison of small-pox, springing up, under similar conditions. Murchison is, however, by no means certain that the *typhoid* poison is generated in this manner; on the contrary he thinks there is no evidence to show that the causes named have any influence whatever over its production.

He is inclined to regard it rather as being generated in the "emanations from decaying organic matter, or organic

* Murchison Medico Chir. Trans., Vol. xli., page 303.

† Notes on Nursing.

impurities in drinking water, or both of these causes combined.

Dr. William Budd has gone a step further in this direction, and his later views may be thus briefly stated, in a quotation from Mr. Simon's last report (April 1861) to the Privy Council on Public Health in England and Wales.

"That the fever is essentially contagious; that the living body is the soil in which the specific poison breeds and multiplies; that all the emanations from the sick are infectious; that by far the most virulent part of the specific poison by which the contagion takes effect, is cast off by the diseased intestine of the fever patient; that the characteristic affection of the bowel in the disease is in reality the specific eruption of a contagious fever; that the sewers and other places into which all this virus passes are the principal channels through which the fever is propagated; *that they propagate it solely in consequence of being the channels for the diffusion of this poison;* that it is no more the offspring of common sewage, than mildew is the actual offspring of damp and decay; and that by placing two ounces of caustic solution of chloride of zinc in the night stool on each occasion before it is used by the fever patient, the intestinal discharges may be entirely deprived of their contagious powers."

The whole of these deductions from observed facts, have been endorsed by Mr. Simon, who a few years since thought with Dr. Murchison, that cesspools, and dirty drains and privies, were in themselves sufficient to produce the poison of typhoid fever. With regard to the theory of causation, my own views are in accordance with those of Dr. W. Budd. Of the efficacy of the mode of destroying the contagious properties of the alvine discharges, we have had satisfactory proof in the cholera epidemics of this country, and it will be well worth a trial in those cases of typhoid fever which occasionally occur.

As in cholera and kindred diseases, there is no question that the *soil* of particular localities plays an important part in the fostering and development of the specific virus of typhoid fever. In two* late numbers of this publication, I have dwelt at some length on the immunity which certain localities enjoy from particular diseases, and have noticed the importance of considering more than is generally done, the geological features of a country, as influencing the distribution of morbific germs, through the medium of soil or water.

* Vol. iii., page 423.
Vol. 4, Review of "Carter on the Fungus disease of India."

It is gratifying to find that the same subject has occupied the attention of Dr. Acland,* Regius Professor of Medicine in the University of Oxford. In a recent communication to the Registrar General of England on the causes of typhoid fever in the city of Oxford, he states his belief:

"That the soil modifies in a high degree the effects of the surface waters; a low place near the river being on gravel, may be quite healthy, when a place further off, and higher *but on another soil, shall have continuous crops of fever.*

"That in considerable areas (Upper Thames Valley) *ague* has been very prevalent within the memory of man, and is now unknown; low fever, (mild typhoid) having taken its place."

I again allude to the important subjects of soil, and geological formation of a country as influencing disease and mortality from zymotic causes, with the view of a systematic investigation of these matters being generally entered upon, by all those who have opportunity and ability to prosecute the enquiry.

March, 1862.

* Quarterly Report of the Registrar General for December 1861.

PART II.

REVIEWS AND NOTICES OF BOOKS.

On the Signs and Diseases of Pregnancy. By THOMAS TANNER, M.D., F.L.S., &c., RENSHAW—London: 1860, 8vo. pp. 504.

THE volume before us from the versatile pen of Dr. Tanner is (we are informed in the preface) the result of his private industry during the earlier portion of his career. The author, having felt that he had derived much benefit from the study of both ancient and modern writers during these "*horæ subsecivæ*," resolved, shall we say, to write a book which should contain a clear and concise account of all that is known regarding the Signs, Symptoms, and Diseases of Pregnancy.

The endeavour to turn to profitable account the labours of others, no doubt appeared laudable enough to himself in however questionable a light others may view such a misdirection of talent. But, at any rate, we think he might have been more generous in the acknowledgment of his sources of inspiration. We refer in particular to the evidently large debt of obligation he has laid himself under to the late talented Author of the "Signs and Symptoms of Pregnancy," in style, material, and arrangement, &c.

The book is readable enough, and as the author says, that he has had no hesitation in laying under contribution the best authorities, the information, as might have been expected, is unexceptionable. The student will find it a convenient Manual, and the practitioner who merely requires such a modicum of information, as will carry him comfortably through the routine of Practice, will find it all that *he* desires.

If we ourselves would look for something of higher pretension in a book published by a practising Physician, our readers cannot blame us if our notice of this volume is of the briefest, considering the importance of the topics under discussion.

We purpose, therefore, merely indicating the chief points alluded to by our author, and, in a few instances, intimating

the results of our own experience as to some of the many subjects treated of, or alluded to, in his work. As there would be little gain either to ourselves or our readers in quoting lengthened passages of little novelty in their purport, and of only average ability as specimens of writing, we may simply preface our brief analysis and still more brief commentary by according to this volume such credit as attaches to a work at once readable in style and carefully arranged as to its contents.

Beyond this we have nothing especially to comment on as regards the manner in which it comes before us.

The first eight chapters are devoted to the consideration of the Signs and Symptoms of Pregnancy; the latter four to the diseases co-existing with and incident to that state.

In the first chapter of general observations on the state of Pregnancy, we find much both amusing and interesting information. Remarkable instances are given of the early and late occurrence of menstruation and pregnancy and of the limits of the generative faculty in men and women. In men this faculty is said to be without limitation, in support of which opinion we find the cases of Sir Stephen Fox, who married at 77 and was the father of four children by his 81st birth-day; and of old Tom Parr whose wife, married after his 120th year, said that he had not ceased to embrace her after the manner of husbands.

Passing on we have the enquiry of how many children a woman can bear, and observations on the fruitfulness of marriage in different countries: also on the comparative fertility of rich and poor. The number of children born to each marriage, we are informed, is four to five in England, six to eight in Germany, four to five in France, two to three in Spain and Portugal. About one marriage in ten in England is said to be unfruitful, and it is concluded that the poor are more prolific than the rich, inasmuch as it appears that from amongst 503 marriages of British Peers, no fewer than 102 were without issue.

Six appears to be the largest number of children which, it is allowed, can be produced in one birth at the present day; but marvellous instances are noticed where there were from 5 up to 365, (Hydatids erroneously considered as human ova); and an extraordinary case is given of a woman who had triplets seven times in succession, the father proving to his own satisfaction that he had contributed most to this prodigy by the seduction of the ser-

vant girl, who likewise gave birth to three children! In the concluding section of the chapter the author informs us that as our knowledge of Physiology and Pathology have increased with the progress of science, so the mortality of parturition has decreased; in confirmation of which it is stated that in the year 1847 the birth of 10,000 children in England and Wales was the death of 60 mothers, whereas in 1857 it was fatal to only 42. Much, however, as he says, remains to be done, and a heavy responsibility rests with the mothers of the present generation to secure for their daughters sound and vigorous constitutions by rearing and educating them more in accordance, than is the custom of the present day, with the teachings of science and common sense. By so doing they will not only secure for them that health and good estate of body which will carry them safely through many of the trials inseparable from the period of child-bearing, but will also lessen the mortality in time to come.

Chapter second treats of the Signs and Symptoms of Pregnancy, and in addition to many excellent observations, there is an entire section devoted to the use of the Stethescope during pregnancy and parturition, in which the student will find all that is requisite, with a little practical application, to make him master of the subject.

In the succeeding chapter very good examples are given of the diseases which simulate pregnancy, and also of the difficulties which are occasionally encountered in diagnosis in such cases.

Chapter fifth is a good practical commentary on all that is necessary to be known regarding the premature expulsion of the fœtus, occurring either as abortion, miscarriage or premature labour.

The author says, and we are disposed to agree with him, that of all the causes of abortion arising from an abnormal condition of the mother's health, constitutional syphilis is the most common, even though there are no external signs manifested by the individual: and we think that, especially when aborting becomes a habit, it is in the large number of such cases due to this cause.

In the treatment recommended for these cases we fully concur. He says, if a mercurial course is neglected the child is almost certain to perish and be prematurely expelled, and that it cannot be too strongly impressed on the

practitioner that it is the syphilitic poison, which causes the abortion, *not the mercury.*

The last four chapters on the diseases co-existing with and incident to the pregnant state, are likely to be the most interesting to the practitioner.

The ninth chapter contains some very good remarks on the occurrence of Mania, Epilepsy, Paralysis, Hysteria and Chorea, also of Epidemic and infectious Diseases during Pregnancy. The general conclusions are, that the influence of marriage is sometimes beneficial to those who are predisposed to, or have been the subjects of, these nervous affections, whilst, on the contrary, it is but too often otherwise.

The advice to be given by the physician therefore should be in opposition to such a step, and it is the more necessary to be positive on this point on account of the popular prejudice in favour of the view that pregnancy is a cure for all chronic nervous disorders.

The error has apparently arisen from the circumstance daily taught by common experience, that women who marry and bear children usually enjoy better and more even health than such as lead a life of celibacy; but it by no means follows that marriage will therefore cure or even mitigate disease. The remarks of Mandeville appear peculiarly apposite on this point. He says, "I never prescribe an uncertain remedy that may prove worse than the disease, for not to speak of the many inconveniences which it often puts people to, beside opening the door to debauchery, in the first place it may fail, and there are two people unhappy instead of one. Secondly, it may but half cure the women who, lingering under the remainder of her disease, may have half a dozen of children that shall inherit it. A physician has a public trust reposed in him, his prescriptions ought never by assisting some to prejudice others." The same reasoning we conceive holds good in phthisical cases, as pregnancy exercises no such antagonistic or retardative effect on tuberculization as is popularly supposed.

In the tenth chapter the ordinary sympathetic affections are discussed. With regard to their treatment we have found with the author that, opium and quinine often afford wonderful relief to the toothache, and that little or nothing can be done for the salivation of Pregnancy. For nausea and vomiting he recommends moderate doses of rhubarb and soda; or of mercury and chalk; of blue pill and

henbane; and the citrate of magnesia; assisting the functions of the stomach at the same time with moderate doses of pepsine, or, when the evacuations have become healthy, hydrocyanic acid or morphia or Battley's sedative with chloric ether, sal-volatile or Prussic acid. With regard to local applications he recommends sedatives, such as the application of lint saturated with a mixture of laudanum and chloroform over the abdomen, or a liniment of Belladonna with tincture of Arnica and laudanum. Occasionally he says he has seen relief follow the use of medicated pessaries made with extract of Belladonna and Morphia. After a pretty extensive trial of all or nearly all he recommends, we should be disposed to place most confidence in the hydrocyanic acid with the local sedatives; and after these we think a liberal use of champagne no mean remedy. Pain of the right side is occasionally a very harrassing affection in the latter months of pregnancy, and we believe the treatment recommended by purgatives and sedatives most efficacious.

In the eleventh chapter there is a long section on Urœmic Convulsions, concerning the treatment of which Dr. Tanner considers that where convulsions have occurred, or where a paroxysm seems impending during either pregnancy, labour or child-bed, chloroform is invaluable. For our own part we can say that we have not realized such satisfactory results in this country: on the contrary we have no reason to doubt that we have again and again seen its use followed by very unpleasant results, and that we think large doses of camphor in the manner recommended by the late Dr. Hamilton much more deserving of confidence. We agree with him, however, in the denunciation of blood-letting which seems rather to aggravate the paroxysms—and, contrary to what he states, blisters often seem decidedly beneficial. After all the grand remedy is the prompt evacuation of the uterus.

In the last chapter displacements of the uterus meet with a full consideration.

We have thus briefly endeavoured to analyse the contents of the book, and in conclusion we have no hesitation in recommending it to a place in the libraries of our brethren as an abridgment of labour likely to be found useful.

But to the book as an original work we object, for many reasons.

The subjects treated of in it have been well nigh exhaust-

ed in the recent works of Montgomery, Simpson, Murphy, Churchill and the other writers of the London, Edinburgh and Dublin schools of Midwifery: and nothing but lengthened experience, great originality, and records of personal discovery or research, could demand the necessity of another work on the very same topics.

That the author has largely read, *and noted*, is apparent; but, would our labours ever end or our life be endurable were every one who has done so to inflict on us a resumé of his studies with a brief commentary as to his own experience?

Dr. Tanner has been fortunate, we think, in finding a publisher who would care to produce his work in the careful manner that is here done. In *this* respect the book is admirable.

Chemistry in its relations to Physiology and Medicine. By GEORGE E. DAY, M.A., Cantab, M.D., F.R.S., Professor of Medicine in the University of St. Andrew's. London: H. BAILLIERE, 219, Regent St. 1860, 8vo. pp. 526.

IT may be said without much fear of contradiction, that, although Great Britain has produced many very eminent Chemists, the department of Physiological Chemistry would, at the present day, be at a very low ebb were it not for the labours of Continental *savans*, more especially those of Germany. If any exception whatever is to be made as regards this statement, it is with reference to the secretion of the kidney, for the works of our countrymen upon this subject will bear favourable comparison with those of any of their Continental brethren. In introducing to the British Medical world, the work bearing the title placed at the head of this notice, the learned translator of Vogel's Pathological Anatomy, Simon's Animal Chemistry, and Lehmann's Physical Chemistry, informs his readers,—and creates no surprise in their minds by his announcement,—that Lehmann has been his principal guide, but that he has also availed himself of the works of Robin and Verdeil, Heintz, Schlossberger, Scherer, Neubaner and Vogel, Wagner, Vierordt, Frericks, Bidder and Schmidt, Bischoff and Voit, and Funke. From the "Atlas der Physiologischen Chemie" of the latter author, the

illustrations are (with few exceptions) taken. These consist of thirty-eight very well executed and correct representations of the microscopical appearance of various animal products. It will be observed that there is no English name in the above list, and in the body of the work itself we find but few references to British authors.

Dr. Day divides his subject into three great heads or departments:—

1. The organic substrata of the animal body; or the proximate principles entering into the composition of the solids and fluids of the organism.
2. The chemistry of the animal juices and tissues.
3. The great zoo-chemical processes.

The first part of the volume, on the proximate principles forming the tissues of the body, occupies 140 pages, and although we do not observe the omission of any important matter, yet we incline to the opinion that the character of this portion of the book is generally such that it possesses less interest for the physiologist than for the pure chemist. There are tolerably full accounts of various substances, very complex in their nature and of unstable condition, with reference to which physiologists are daily advancing in the opinion that they are not normal products in the perfectly healthy body, but that they represent stages in the metamorphosis of both tissues and food—that they are, in fact, substances which have, under peculiar circumstances, failed to become converted into some one or more of the materials of the standard excretions, water, carbonic acid, urea, and mineral salts. Of course there are certain of these substances, occasionally obtained from the excretions, which have been simply ingested and have never really entered into the composition of the body.

There is a foreign character about this part of the work which, in our opinion, mars its usefulness. This is especially the case with the numerical statements which are generally made in grammes. Surely in a work intended for English students, the English standard weights should be used. Whilst Dr. Day's book was passing through the press he might readily have converted grammes into grains, and thus have saved his readers the trouble of multiplying his figures by 15·432 in order to effect this conversion. Dr. Day is not singular in this practice of using Continental standards of weights and measures, but we feel sure we are expressing

the opinion of most British readers when we say it is a custom "more honored in the breach than the observance."

The statements contained in these chapters are, so far as we can judge, of a reliable character. There is no originality but a simple compilation. The author, or translator, or compiler, whichever he is to be considered, has apparently carefully collated the various treatises to which he refers, and gives his readers a condensed epitome of them. He is cautious, not to say reticent, when there appears a necessity for him to express an opinion. This is seen in the account given of the origin of urea—which account we here print entire.

"It is well known that the origin of urea is still a *quæstio vexata* among chemists and physiologists; one party, including the names of Liebig, Bischoff, and others, holding that the urea is solely a product of the metamorphosis of the nitrogenous tissues; whilst the other party, which ranks amongst its supporters Lehmann, Frericks, and (more especially) Bidder and Schmidt, maintain that the formation of urea is dependent upon two factors, one of which is variable, namely, the amount of assimilated histoplastic or albuminous food; while the other is constant, namely, the necessary consumption of the albuminous tissue when the animal is fasting.

"Fuhrer and Ludwig, in a recent memoir 'on the Physiological Compensation of the Spleen, and on the Sources of Urea,' of which I have only seen an abstract in Schmidt's Jahrbücher, maintain a third view; namely, that the urea, during the normal nutrition of the body, especially depends on the solution of the morphotic elements of the blood (especially the hæmatocrystalline), and that all superfluous food causes an excessive formation and destruction of these elements.

"It admits of no doubt that urea is formed from the nitrogenous constituents of the organism, its artificial production from such substances affording the strongest evidence on that point; in addition to which we may add the facts observed by Lassaigne, Scherer and others, of urea being contained in the urine excreted after nearly three week's starvation. As the metamorphosis of tissue occurs with the greatest activity in the muscular system, and as, further, increased bodily exercise augments the amount of urea, we are justified in regarding the urea as formed for the most part from the worn-out muscular fibres, although it is most probable that other vital tissues may contribute to the general amount. Whether it is formed in the organic particles at the moment of their disintegration, or whether it is first formed in the blood, is a point which cannot be considered as decisively established; but it is most probable that the latter is the correct view, because Liebig, in his experiments on large quantities of muscular juice, could not

detect in it any trace of urea, although he found substances from which he could produce it artificially. It seems, therefore, almost certain that these substances (creatine, creatinine, and probably inosic acid) are decomposed in the blood, by the action of the alkalies and of free oxygen, into urea and other matters to be excreted. Moreover the view that the urea is formed in the blood is supported by well known experiments, showing that gelatin, glycine, alloxantin, theine, and other substances, which it is impossible to suppose can form tissue, are converted into urea and other matters, as is evidenced by the fact that this substance occurs in a perceptibly increased quantity in the urine, soon after any of the above named substances have been swallowed.

"Lehmann's view that the urea is in part formed from assimilated nitrogenous food which has never entered into the substance of the tissues, is chiefly based on the following facts : (1) on the extent to which its amount is increased by the free use of animal food (nature in this way getting rid of the superfluous plastic material along with that which has become unfit for use); and (2) on the circumstance first noticed by Frericks, but mainly established by the investigations of his opponent, Bischoff, that the use of gelatin and gelatinous food so rapidly increase the quantity of urea, that we are compelled to believe that these nitrogenous matters are at once directly oxidised in the blood, without having entered into the composition of the tissues ; and if these, why not the protein-bodies also ? (We should observe that Bischoff himself fully grants that the gelatin is directly converted in the blood into urea, but, he adds, it is never a natural article of food, nor is it ever found as a normal constituent of the blood.)

"When treating of uric acid we shall show that in all probability a great part of the urea, separated by the kidneys from the blood, had previously existed in the form of that organic acid."

Those practical physicians who confidently prescribe for their convalescent patients daily doses of gelatin in the shape of calf's-foot jelly, will, we presume, be somewhat doubtful as to the correctness of this view of the direct conversion of gelatin into urea in the blood. They will probably say—we have always found it to have a certain value as a nutrient under such circumstances, and we have failed to recognise any excessive discharge of urea after its use, so, in all likelihood, we shall find that the experiments from which this opinion of its invariable direct oxidation is deduced, are of such a character as not to permit us to set them side by side with our practice, or legitimately compare their results with those which follow a moderate meal of this substance. There is such a thing as the *use* and the *abuse* of both solid and liquid foods ; and there are abundant proofs

that moderate quantities of many of the articles which are consumed as food by omnivorous man will be assimilated, whilst no assimilation whatever will take place if immoderate quantities are taken. But we must not touch further upon foods, or we shall weary both ourselves and our readers. There is one point, however, of great importance, which is prominently brought forward in the section on the uses of fat, and which we think is frequently overlooked, especially by those who will not permit the hydro-carbons to be spoken of physiologically, except as calorifacients. We quote from Dr. Day.

"Fat is one of the most active agents in the metamorphosis of animal matter. Lehmann ascertained, in experiments on lactic fermentation, that the process cannot be excited in saccharine or amylaceous fluids by albuminous bodies, excepting with the co-operation of fat; he likewise found that a certain, although a small, quantity of fat was indispensable to the metamorphosis and solution of nitrogenous food during gastric digestion—a fact which has received confirmation from the observation that, in experiments on artificial digestion, the solution of substances used as food is considerably accelerated by the presence of a little fat. The occurrence of fat in the egg [it might have been said in the yolk granules of of all ova], in pus, in all plastic exudations, and in all highly cellular organs, is a clear indication that this substance plays an important part in the process of cell formation and no animal cell or cell-yielding plasma has ever been observed into which fat does not enter as a constituent."

And yet in spite of this there are physiologists who will insist upon placing fat at the head of *non-plastic* elements.

The chapter on the Protein-bodies, contains a short but good account of these substances. Dr. Day's cautiousness is again exhibited in the following paragraph concerning the physiological importance of fibrin.

"It has long been a disputed question whether fibrin belongs to the progressive or retrogressive metamorphosis; that is to say, whether it is a factor in the elaboration or in the disintegration of the tissues. For a full discussion of the subject I must refer to Lehmann's Physiological Chemistry, vol. 1, pp. 361—364, and to Simon's Lectures on General Pathology, pp. 50—52. As in the process of acid fermentation there are intermediate stages between the two extremes of alcohol and acetic acid, so in the present case we may regard fibrin as representing one of the stages of oxidation which albumen undergoes in its transition into the more highly oxidised elements of the tissues."

The second Book is devoted to the chemistry of the animal juices and tissues. Here Dr. Day seems more at home and less dependent upon his foreign friends, though by no means neglecting to give the results of their investigations. The arrangement of this book is a very good one. Dr. Day treats at length, and in an instructive manner, of the leading fluids of the body, dividing them into the following groups.

1. The *digestive fluids*, including the saliva, gastric juice, bile, pancreatic fluid, and intestinal juice; and to these he has added the consideration of the intestinal contents.

2. The *blood and its allies*, including the chyle, the lymph, the blood itself, and the various transudations.

3. The *fluids connected with generation and development*, including the seminal fluid, the milk, and the fluids of the egg.

4. The *excretions of the mucous membrane and the skin*, including mucus, the various sebaceous matters, and the sweat.

5. The *urine*.

The *exudations* which are occasionally found, as products of disease, in the animal organism, are next noticed. Dr. Day here follows Rokitansky in recognising three leading forms of exudation, viz.:—(1) fibrinous exudation, which is again divisible into the simple (or plastic), the croupous, and the tuberculous varieties; (2) albuminous exudation; and (3) purulent exudation. And this division concludes with a short account of the chemistry of the *solid tissues* of the body.

The information afforded in these chapters is such as *almost* to enable the student to dispense with other treatises upon the subject of the fluids of the body. We say *almost* because there are certain points upon which we think fuller information should have been given. These we will indicate as we pass over these chapters in order.

We notice that although Dr. Day frequently refers to the researches of our countrymen—as he could scarcely fail to do when writing upon the subjects treated of in his second book,—yet he makes no mention of the "Contributions to our Knowledge of Digestion," which Dr. Harley published in the British and Foreign Medico-Chirurgical Review, Jany., 1860. Had he referred to this communication he would have found that iron is a normal constituent of saliva, but that the

organic matter must first be destroyed before it can be detected. He would further have found that Bidder and Schmidt's estimate of the quantity of saliva secreted in 24 hours, by an adult man, (48 oz.) is too high, for they have not taken into account that very little or none is secreted during sleep and in the intervals of digestion. Dr. Harley thinks from 1 to 2 lbs. nearer the quantity. Further Dr. Harley found that fats were emulsioned to a limited extent, by the alkalinity of the saliva, and that when acidulated, the fluid has a slight action in converting albumen into peptone. We do not lay any great stress upon these experiments of Dr. Harley, but we think that they should be, at the least, alluded to, in a work which professes to give the latest researches into the subject.

There is a similar omission with reference to the gastric juice. Dr. Beaumont's name is only mentioned in a foot note. But a substitute for Alexis St. Martin has been found in the shape of an Esthonian peasant, Catherine Kütt, aged 35 years, and weighing about 118 lbs., in whom there had existed for three years a gastric fistula, three or four lines in diameter, under the left mammary gland, between the cartilages of the ninth and tenth ribs. Schmidt and two of his pupils, Gruenewaldt* and Schroeder, carefully studied the gastric juice obtained from this woman. They found the mean daily quantity about thirty-one pounds, or more than a fourth part of the weight of the body. Lehmann says about one-tenth the weight of the body is the average quantity; whilst Dr. Harley's experiments tend to show that this estimate even is too high, and that a fifteenth of the weight of the body is about the amount daily secreted. Upon the functions of the gastric juice there need be nothing more said than what Dr. Day has written.

The chapter upon the bile is a good one; the functions of the secretion are very well summarised. For the benefit of those well-meaning individuals who will pervert terms and speak of the "respiratory action of the liver," we give the following extract:—

"The view that the secretion of the bile is mainly for the purpose of purifying the blood, of removing from it the carbonaceous matters not separated by the lungs, is opposed by the following considerations; first, there is no evidence that the quantity

* An abstract of Gruenewaldt's paper may be found in Beale's Archives of Medicine, Vol. I, p. 270.

of bile is increased when the process of oxidation in the lungs happens to be impeded ; secondly, pathological anatomy yields us no facts in favour of the view that the liver can act vicariously for the lungs ; and thirdly, the separation of carbon by the liver is so inconsiderable as compared with that by the lungs (being at most one-tenth, and sometimes only one-fortieth according to Bidder and Schmidt), that the liver can hardly be regarded as a purifier of the blood in so far as the carbon is concerned."

Dr. Day observes further that one use that has been ascribed to the bile is to neutralise in the small intestine the acid chyme which emerges from the stomach. Upon this point he says—

"The bile can contribute little or nothing to the neutralisation of the free acid, because in the first place the bile is very slightly alkaline and often perfectly neutral, and, secondly, because the chyme in the intestine is still acid after the admixture of the bile. The following reaction probably takes place :—the alkali of the bile leaves the resinous and fatty acids, with which it was combined in the bile, and unites with the stronger acids of the chyme, namely, hydrochloric and lactic acids ; the biliary acids thus liberated give an acid reaction to the chyme until they become decomposed."

Our readers will remember Bernard's view, viz., that the bile precipitates digested agotised matters and pepsin. They will probably also recollect that Corvisart announced an opposite notion, which is perhaps the foundation of Dr. Day's "probable reaction" above given. This statement of Corvisart's, that the acids of the chyme precipitate those of the bile, is corroborated by Dr. Harley. He gives the following as the results of his experiments to test the correctness of Bernard's opinion.

"Alkaline human bile, added to pure chyme, gives a copious precipitate.

Alkaline human bile, added to chyme, the acid of which has been neutralised, gives a turbidity but no precipitate.

Alkaline bile added to a neutral solution of pepsin, gives turbidity but no precipitate.

Alkaline bile added to distilled water gives turbidness but no precipitate.

Alkaline bile added to water acidulated with hydrochloric acid gives a copious precipitate."

It is concluded, therefore, that the precipitate which bile gives with chyme is due to the presence of acid in the latter. And that this precipitate consists neither of pep-

tones nor pepsin, but of one or more of the constituents of the bile.

The subject of the action of calomel upon the secretion of the liver is one of very great interest, but it is dismissed in one line by Dr. Day. "Calomel increases the watery portion, but not the solid constituents of the bile." We think a reference might have been made, if it had been merely as a foot note, to the very careful experiments of Dr. George Scott, detailed, in an interesting paper, "On the influence of Mercurial preparations upon the secretion of the Bile;" published in Dr. Beale's Archives of Medicine, vol. i., 1859. These experiments gave uniformly one result, viz., *a diminution in the amount of fluid-bile and bile solids* secreted after the administration of large doses of calomel. Dr. Scott says—

"Although it would be rash to venture any decided opinion from the very small number of experiments above detailed, yet the few that were made, all point so much to one conclusion that, if they be confirmed by future and more varied trials, they would throw considerable doubt upon the generally received opinion that calomel in large and purgative doses increases the flow of bile. It may be urged that although calomel does not increase the secretion of bile in the dog, that is no reason why it may not do so in man; and that, even if mercury do not excite the liver to increased secretion in a healthy state of the organ, it may still do so in certain diseased conditions of the same. If the first objection were true, the same could be brought against the results of the experiments which have been made upon the lower animals to ascertain the action of poisons, or any other articles of the Materia Medica. With regard to the second objection, nothing analogous occurs in the action of drugs upon other organs; there is no medicine which diminishes the secretion of urine in the healthy state of the kidney, and increases the same in the diseased conditions of the organ; there is no medicine which diminishes the amount of sweat in a healthy state of the skin, and acts as a diaphoretic in certain diseased conditions of the integument. Hence it seems difficult to suppose that anything which diminishes the flow of bile in a healthy condition of the liver, should increase the secretion of the same in a diseased state of that organ.

"Whether it be the mere purgative effect of calomel which causes the diminution in the secretion of bile, or some specific action, further experiments must decide. Of course it must be understood that the above remarks apply only to cases where *purgative* doses of calomel have been given. Whether small and frequent doses of calomel continued for a length of time, so as to

produce the specific action of mercury upon the system, really augment the biliary secretion, is matter for further experiment."

This is a matter of so much importance and interest, that we would suggest that the experiments might be fairly repeated, or rather the series continued, by those Zillah Surgeons who have time on their hands, and who have the necessary practical acquaintance with chemical manipulation. Pariah dogs will form good subjects for experiment, and an apparatus of the kind used by Dr. Scott might be extemporised without much difficulty.

Dr. Day's account of the function of the pancreatic fluid is rather meagre. He notices Schmidt's opinion that its chief office is to dilute the chyme, but he does not mention that, so long ago as 1835, Eberle pointed out that it had a remarkable power of fluidifying chyme loaded with peptones. Nor does he refer to the experiments of Pappenheim and Purkinje, from which they concluded that this fluid has a distinct digestive power on protein substances. We were about to say that our author had also neglected to notice the great discussion which has taken place within the last five years upon this subject. We certainly expected to find it in the section specially devoted to the consideration of the pancreatic fluid, and were rather surprised to meet with it, in a foot note to page 451, where under the head of "Digestion," the various intestinal solvent fluids again come under notice. In the text we find these words:—"A considerable portion of this class of bodies (protein bodies) passes unchanged from the stomach into the small intestines, where it is acted upon by the intestinal fluid, *and probably also by the pancreatic juice.*" To the clause which we have *italicised* a note is appended in which Corvisart's views as to the true digestive action of the pancreatic juice converting the protein-bodies into peptones are correctly stated. His conclusions, which it is mentioned are in part confirmed by Drs. Brinton and Harley, are as follows:—

1. That the mixed liquid poured into the duodenum (the bile and the pancreatic and intestinal juices) digests albumen when the gastric juice is altogether excluded.

2. That coagulated albumen can be digested in large quantity by infusion of pancreas alone.

3. That the quantity of albumen which is dissolved is almost the same whether the fluid is acid, alkaline, or neutral.

Meissner denies that the pancreatic fluid digests albuminous substances unless it be obtained from animals killed while in the act of digestion, and has further an acid reaction. But Corvisart maintains the views given above and says the pancreas is not in full action till about five or six hours after a meal; not till the stomach has almost completed its work. Dr. Harley says the pancreatic fluid seems to unite in itself the functions of salivary, gastric and biliary secretions. Dr. Day considers that its true action is not definitively determined; and cites Skrebitzki as the latest authority, who "comes to the conclusion, from a series of careful experiments, that the solvent action of the pancreatic juice is precisely equal to the solvent power of an equal quantity of water containing as much alkali as is usually found in this secretion." We must leave Corvisart, Meissner, and Skrebitzki to fight this matter out; for ourselves, we incline to enlist under the banner of the first named investigator.

The most carefully written and most elaborate chapter is that on the Urine. Although a foreign air still pervades this section of the work, yet the numerous references to the researches and opinions of our own countrymen, render this less apparent than in the other sections. The unity of the treatise is considerably marred by the use of foreign standards of weights and measures in some instances, and English ones in others.

The concluding portion of the book, on the Zoo-chemical processes, appears to be very well arranged. It is divided into four chapters, treating of the Metamorphosis of the Tissues; Digestion; Respiration; and Nutrition. It is certainly very much condensed, and is nothing more than a resumé of the more recent opinions upon these processes. It may probably satisfy the junior student, but we feel certain that it will fail to afford satisfaction to those who do not wish merely to be made acquainted with an epitome of the various opinions of the more modern physiologists, but expect that the author whom they consult should have some originality about him, or, at least, should have a thorough mastery of his subject before he presumes to claim the position of a teacher of it. Should Dr. Day's work reach a second edition, we would strongly recommend a curtailment of the first book, and a considerable amplification of the third.

Although we have pointed out what we believe to be faults

and omissions in this book, yet upon the whole we can recommend it as a useful guide to the student and young practitioner. In fact, it supplies a want, by furnishing in one volume, a Manual of Physiological Chemistry. Its value would be very much enhanced by a good index being furnished; there is a fair analytical table of contents, but we hold that every book which treats upon scientific matters, and is likely to be a work of frequent reference, should have as full an index as can possibly be supplied.

Leçon sur la Dégénération Endémique des os du Pied. Par Le Dr. A. COLLAS, Second Medecin en Chef de la Marine Impériale, Chef du Service de Santé des Etablissements Francais dans l' Inde. Pondichéry, 1861.

Lecture on the Endemic Degeneration of the Bones of the Foot. By Dr. A. COLLAS, Second Physician in Chief of the Imperial Marine, Chief of the Health Service of the French Establishments in India, pp. 63.—1861.

THE above is the title of a small pamphlet which reached us from Pondicherry (as we miscall it), and which deserved, and but for unforeseen obstacles would have received, earlier notice.

As the work of a French Physician, like us, destined to be "accablé par l' elevation d' un temperature qui rend le travail de tête plus penible que n' importe quel exercise corporel, et sous un çiel moins pernicieux pour la vie de l' Européen que pour le libre exercice de ses facultés intellectuelles," we receive with pleasure this fresh contribution to our knowledge of a peculiar and important disease; and we do all honor to the spirit of the author who "feels it his *duty* to become acquainted with the diseases of the climate," and who freely, and with great ability, analyses the experience of others, and favours us with his own views.

As this is the first occasion on which we have received a French work for review, we desire that the author may accept our acknowledgments of his courtesy in thus honoring us, and of our high respect for the School of French Medicine and Surgery so ably represented by this valuable contribution to professional literature.

The subject of enquiry is the disease popularly known on this side of India, as the "*Madura Foot*," and which has formed a subject of investigation for Mr. Eyre, Mr. Colebrook, Dr. Carter and others; and upon which we, in our present number, insert a valuable contribution from Dr. Bidie.

Space does not permit that we should now institute any comparison between the views of these different authorities—having so recently given our own views at some length, in a notice of Dr. Carter's paper on the Fungus disease of India. A further and more complete investigation may become hereafter necessary; but we feel that in each contribution much of value is contained, and much at once to interest and instruct our readers.

Our author has, we think, rightly adopted the present form, that of a *Lecture*, which allows him "to withdraw from considerations which must have been entered upon in a *Memoir*," and which would be of too intricate a nature to be readily comprehended by all his pupils.

This pamphlet, despite the modest request of its author that its imperfections may be excused on the grounds of his writing "far from any libraries of reference," is drawn up with an unusual amount of care, and written in so clear and logical a manner, as to make it quite a model of what such a pamphlet should be. It passes under review, (1) Synonyms; (2) Definition; (3) Locality; (4) Localisation; (5) Causes; (6) Symptoms; (7) Pathological Anatomy; (8) Nature; (9) Diagnosis; (10) Prognosis; and (11) Treatment.

The author's reasons for giving this disease, which has received so many names, that of "Endemic degeneration of the bones of the foot," are simply that he considers the names previously given, such as "Goutlou Mahdi," "Madura Foot," "Perical," "Anaycal," (the two last Pondicherry names) "Ulcus grave," "Tuberculous foot," &c., &c., unsatisfactory, and that a name founded on what our author conceives a more correct pathological view of the complaint, is strongly needed.

"By this expression," we are quoting Dr. Collas, "endemic degeneration of the bones of the foot, I mean the localisation in one foot of a benign diathesis (diathese benigne) which develops itself in a marked manner, more frequently in men than in women, and is characterised by the production of a particular element which occupying the place

of the bones of the foot ends by inducing their destruction." (p. 9.)

"As this malady has some of the apparent characteristics of 'tuberculous affections,' English doctors have called it 'the tuberculous foot' and 'the tuberculous disease of the foot.' I give it the name of 'endemic degeneration of the bones of the foot,' to prejudge nothing of its nature—a secret which will be revealed to you by the microscope. At present I will remind you that this disease is identical with another alteration of bone, excessively common in this country, where it is called cancer of the lower jaw. I will revert to this whenever I find occasion." (p. 9.)

We have simply translated our author, we shall reconsider his nomenclature presently.

As to *Locality*, or the situations where the disease is seen, Dr. Collas objects to the statements of Drs. Colebrooke and Ballingall, that "cotton soil" is the only habitat of this complaint.

"This assertion does not appear to me to be as absolute as Dr. Colebrooke would make it appear. For if, as in Guzerat and in Madura, cotton soil is found in the district of Bellary (where by the bye the whole soil is far from being formed by that sort of earth); we do not meet with it at Cuddapah, where very certainly this disease reigns. I have already told you that most probably they were cases of this disease, which in Tanjore, at Combaconum, and Trichinopoly, were observed by Messrs. Davidson and Joseph, whilst in the two last named localities cotton soil does not exist. The soil is formed by alluvial deposits of the Cauvery, which at the time of its periodical inundations, overspreads and fertilizes Tanjore which it has created." (p. 10.)

So at Cuddapah, Bangalore and Pondicherry, argues Dr. Collas, cases of this complaint are to be met with, and yet these are not localities of cotton soil.

Our own view on this subject is opposed to that of Dr. Collas who is, however, supported in his opinion by competent authority, and his remarks on the subject are well worthy of consideration.

Our author moreover seems to believe that in the "cancers of the inferior maxillary," of which many cases are seen in Pondicherry, we have a complaint identical with the disease under consideration, and he would argue from *their* frequency in a territory devoid of cotton soil the non-necessity of such a soil for the production of the disease in the foot. This is however pushing the argument to an ingenious length, and eventuates in a conclusion we are not at all prepared to admit.

The fourth subject of enquiry, is the *Localisation* of this complaint. It is certainly one of its marked features, that the lower extremity is the part fixed upon for its development. In proof that the disease elects the right foot for its attack Dr. Collas supplies the following table.

	1856.		1857.		Recapitulation.	
	Feet.		Feet.			
	Right.	Left.	Right.	Left.		
Bellary	2	0	1	4		
Chittoor	0	0	1	0	Right foot	25
Combaconum	2	1	1	0	Left foot	15
					Total	40
Guntoor	1	0	1	0		
Madura	5	5	7	5	1856	20
Trichinopoly	4	0	0	0	1857	20
	14	6	11	9	Total	40
	20		20			

But although the foot is thus seen to be the most usual seat of the malady, and from some inexplicable cause the *right* foot, yet has it been seen in the hand both by Drs. Colebrook and Raddok. By some again it has been supposed to confine its ravages to the bones of the tarsus and lower extremity of the tibia, but both Messrs. Colebrook and Lovell, have each had a case requiring amputation above the knee; and we have ourselves seen the disease extending high up to the leg—and we may remind our readers that Dr. Bidie (p. 225 of this volume) found the disease extending up the leg.

Dr. Collas remarks having seen a case at Bangalore in which the left hand and both feet were attacked, but it was easy to see, he adds, that the attack had commenced in the right foot, and that the left hand had been the last invaded.

No class of people seem exempt. All castes afford victims, and it makes its appearance as well among the idle and rich as amongst laborers. "The merchants, cultivators, palankeen bearers, weavers, beggars, &c., all are reached by the malady. The ryots are the most numerous, but in our

(he is quoting Dr. Eyre) districts they constitute the major portion of our population."

Are Mussulmen subject to the complaint? or does it confine its ravages to the classes who walk about without shoes?

Another and not uninteresting topic is the *age* of patients labouring under this disease. Dr. Bidie (p. 223 of this volume) states that *adults only* are attacked, and this agrees with the following table given by Dr. Collas and compiled from the recorded cases of Messrs. Eyre and Fletcher.

	Bellary.	Guntoor.
Between 20 and 30 years.....	17 cases	4
Do. 30.....40.....	16	6
Do. 40.....50.....	6	14
Do. 50.....60.....	2	2

"If in the first of the localities above indicated young men seem more exposed to be attacked by endemic degeneration of the bones of the foot, than in the second, this would arise, according to Mr. Eyre, from the fact that the malady was recognised sooner at Bellary than at Guntoor, and that the first operation having been successful the sick were encouraged to enter the hospital. In all the cases in Guntoor in which the people were old the complaint had endured a long time."

"But," observes our author, "although these causes have a real importance, the difference, (in ages) may arise from the greater or less intensity which the climate, the manners, constitution, daily food, &c., may in different localities impart to the malady; as well as the epoch at which the patients despair and which may differ in these two countries, where the sick have not had recourse to the European doctor, except to demand from him a mutilation which he has, almost always without hesitation, practised." Dr. Colebrooke has seen the complaint on a boy as young as sixteen, and Mr. Minas (Bengal) gives the average age of those attacked as thirty three.

Our author next proceeds to discuss the causes of this complaint. He observes.—(p. 20.)

"This malady is necessarily under the influence of general causes; as I have not the necessary data to analyse, I will confine myself to telling you that we find magnesian limestone or dolemite in many of the districts where it reigns, and to reminding you that Mr. Colebrooke attributes an extreme influence to residence in these localities, where a dark and heavy soil is met with, more particularly that soil adapted to the cultivation of cotton; but since, if I mistake not, endemic degeneration of bones of the foot occurs elsewhere than

upon cotton soil, and, as in Pondicherry, we observe another form of the localisation of the affection which produces it, and the development of which it is impossible to explain by that cause, the latter must be looked upon more as predisposing than exciting."

He next passes in review Mr. Colebrooke's idea that it might be caused by a wound from the thorn of the mimosa, and asks.

"Would punctures of such a nature explain the long duration of the sickness and its specific character? Would it be easy to understand why elsewhere than in a cotton soil country they should be harmless or only produce the accidents common to all wounds caused by punctures. Why, in a country where every one walks barefooted, should there relatively be so few specific accidents following these punctures, and why should the same cause respect women and children, and attack with a specific malady only the men?"

He argues that a puncture, such as suggested, has no more to do with the complaint than the chewing of betel nut has in producing the "Epulies graves" so common in Pondicherry.

At Sirsa, Mr. Minas observes, the complaint is attributed by the natives to any slight accident, which may have preceded it, such as knocking the foot against a tree or a piece of stone. And our author justly observes on "the facility with which the natives who know not the value of time, and are unable to refer effects to their proper causes, recount to you occasionally the most extraordinary stories, and tell you—even against their interests, mistaking the objects of your curiosity—the most monstrous lies."

From the *causes* we proceed to the *symptoms* and Mr. Collas rightly conjectures that it is highly improbable that any medical man has had the good fortune to watch this complaint through all its stages, as the patient rarely presents himself but to demand amputation at our hands. Nevertheless he ventures to divide its course into two periods —one a "period of deposit or crudity;" and the second "the period of softening or destruction."

He objects to the term *tubercle* being used as leading to confusion, it being apt to suggest that too well known malady "Tuberculosis," and substitutes the term "Tuberositis," as descriptive of the appearance the foot assumes.

"*First period, or period of deposit or crudity.*—All the sick refer back several years, even more than seven years, the first symptoms of the endemic degeneration of the bones of the foot. The cases of Mr. Minas had an average duration of seven years before they consulted him.

"The symptoms which characterise this period, consist in the tumefaction of a portion of the bones of the foot, and the appearance of one or more tuberosities simultaneously and successively on one or more points : these are hard and painless. Their appearance seems to be unaccompanied with any disturbance of the functions. The foot which tumefies very slowly, ends by doubling, tripling, and even quadrupling its volume.

"The foot or the portion attacked is hard like one mass. The pressure of the finger produces no mark. However this hardness is not stony, it has something of the elasticity of an egg shell, metallic, and gives now and then to the touch a feeling quite peculiar. As to the number of the tuberosities these are variable, sometimes they are few, and occasionally there is but one or two. They are situated on the dorsum, and on the sole of the foot and between the toes.

"Spite of the inconvenience they produce, the general health of the sufferer is wonderfully preserved, and although it would seem that the increase of the volume and the development of the tuberosities are making their accession, the general economy remains completely indifferent to the work of localisation.

"The augmentation of the volume of the foot is the result of the formation of that pathological tissue which, as I have already told you, replaces and destroys the bones themselves, and which is caused by the production in excess, and its deposit in the structure of these bones, of one of their normal elements. To this error of production in quantity there is joined another, that of place, if I may be allowed the expression, since these elements are again met with in the cellular tissue, the muscles, the tendons and the skin."

The above is an admirable description, in the first three paras, of what is seen : and as such the sketch is complete, but we demur to the pathology of it. Persuaded as we are that the disease has its origin external to the human body, we should hesitate to describe as a first symptom "la tumifaction d' une partie des—os du pied," rather should we contend that the skin was the first tissue attacked. In one of Dr. Wilson's (of Madura) cases for instance, the disease was removed at an early stage, from the skin of the plantar surface of the foot, and the patient had no return of it ; but the difficulty here lies, as mentioned in the statement which precedes the description of the symptoms, in the non-observance of the malady by any Medical man on its first appearance ; still if the bones were at first attacked could we have the state of "sans aucun trouble dans les founctions." Is it possible to have destruction of the bones of the tarsus going

on, and yet locomotion not interfered with, or painlessly carried on? We think not.

Following up his sketch of the course of the disease he thus describes the "*Second period, or period of destruction,—of softening.*—In this period, however advanced it may be, the sick man experiences no functional disturbance which can be directly referred to: his state, looked at in this point alone, one" would say that his sickness was simply local or parasitic (which latter no doubt it is), "externally its growth, is characterised by ulceration of the tuberosities. This is the result of a particular alteration in the nutrition of the pathological production deposited in the tissue of the bones, which henceforth becomes a foreign body in the economy necessary to be eliminated, as this product destroys itself by this elimination, it is easy for you to understand why I have called this period, a period *of destruction.* I have also called it, period of softening—(Panode de ramollissement) because the morbid tissue which has replaced the osseous tissue has suffered, previous to elimination, that disintegrating modification (modification désagrégatrice) known under the name ramollissement." (24—25.)

Our author next submits a remarkably well written description of the appearances afforded on examination of the diseased tissues.

In this to translate would much impair the force of the passages, and we prefer to give them in their original form at once a fairer course to the writer, and as allowing our readers to judge of the style of composition in which the work is so excellent.

It will be observed that both Dr. Carter and Bidie, have dwelt upon the microscopic appearance of this morbid product, and that they found their nomenclature upon *it,* in part.

Dr. Collas thus describes the course of the disease and the character of the discharge. (pp. 25—26.)

"Les tubérosités ulcérées présentent à leur sommet des ouvertures fongueuses, souvent taillées à pic et circonscrites, parfois, selon M. Eyre, par des bords durs et sinueux. Ces ouvertures donnent issue au produit pathologique ramolli. Il est éliminé sous la forme d'une matière fétide, jaunâtre, en général assez épaisse, et ne contenant pas de globules de pus. Probablement en ne tenant compte que de ses caractères apparents, elle ressemblerait, suivant le médecin que je viens de nommer, à du pus simplement sanieux, ou, d'après M. Ballingall, à du pus séreux, contenant accidentellement une substance

granuleuse et molle, analogue à celle que l'autopsie révèle dans l' intérieur du pied.

" C' est là ce qui, du vivant du malade, constitue probablement le symptôme pathognomonique *(caracteristic)* de cette maladie ; c'est un écoulement incessant d'une matière granuleuse, grisâtre, ou noirâtre, par masses, petites, irrégulières, molles, quoique, parfois, dures au toucher comme de la pierre. On retrouve partout ces granules qui flottent dans un pus séreux. Dans quelques cas on en a rencontré dans les cellules du tissu adipeux. Le pied est couvert d'ouvertures fistuleuses nombreuses par les quelles sort un liquide séreux qui renferme des granulations." (Minas.)

" La sortie de cette matière granuleuse, indiquée plus particulièrement par M. M. Godefrey, Ballingall et Minas, constitue donc un symptôme d'une importance extrême qui, à présent qu' il est signalé, s' observera, dés ormaís, dans tous les cas de Dégénération du pied.

" Vous avez pu, Messieurs, constater, sur le malade qui fait l'objet de cette leçon, les caractères physiques de ce liquide épais, granuleux, mal lié, fétide, abondant, jaunâtre, souvent souillé, mais non mélangé de sang ; vous avez reconnu, avec raison, qu'il n'avait aucun des caractères du pus. Je l'ai examiné plusieurs fois au microscope et je n'y ai jamais observé un seul globule de pus. Autant que je puis avoir foi dans mon peu d'habitude à manier cet instrument, j'y ai reconu des masses amorphes de matière granuleuse trèsténue, des cellules du tissu fibro-plastique très-longues, nettement tranchées à l'une de leurs extrémités et terminées, à l'autre, par une sorte de frange, des globules d'huile et un très-grand nombre de petits corps en général, d'un brun noirâtre ou rougeâtre, affectant une forme irrégulièrement triangulaire, qui, sur des points bien éclairés ou décolorés, m'ont paru formés de cellules petites, transparentes, et dont l'eau, l'acide acétique, l'éther sulfurique, et l'acide sulfurique respectaient les contours et la couleur, et, enfin, dans une dernière expérience, quelques cellules arrondies, à noyaux, que l'ammoniaque a paru rendre plus sensibles, mais que je n'ai pas réussi à bien étudier."

If we turn to the microscopical characters as given by Dr. Vandyke Carter, we see a great resemblance in many parts. Having quoted these at length (vide pp. 153—157) we need only now refer our readers to our former annotation in this Volume.

Dr. Collas goes on to say.

" A sound introduced into one of these fistulous openings penetrates deeply within the foot and traverses the affected tissues, as if the bones had been destroyed. Despite the suppuration and the destruction of the whole or part of its frame-work, the foot retains the accidental size which it has attained."

" The skin is covered with prominent tuberosities, it is *hyper-*

trophied, stretched, hard or with a certain degree of elasticity—its color is not changed (?) the toes are separate one from another."

"In this desperate state which admits of no other resource than amputation, Mr. Eyre has testified as a very remarkable fact, that in most cases the general health is not altered."

"Meanwhile one can easily understand that it is not necessary that the complaint should have any very long duration from the commencement of the period of softening before a patient, immoveable, suffering, unable to work, that is to say for India, in the most profound misery, should fall into a state, known well to all Medical men, which, without belonging to any specific cachexy, may be called with good reason "the cachexy of misery."

Our author proceeds to give three cases in extenso, exemplifying the symptoms described, and finishes by the following short but able resume.

"If we sum up the most salient particulars of this degeneration, we find "concentration of the complaint in one foot," almost exclusive predisposition of men to be attacked, preservation of the general health, even when the local disorder is considerable, absolute incurability and death by diarrhœa, without the local affection being reproduced in the neighbouring glands, or more important organs."

Next follows the Pathological Anatomy, concerning which our author is not very complimentary to his English compeers. He admits however that his own observation of cases has not been sufficient to enable him to enter into minute details, nevertheless he proposes to furnish his pupils with means to comprehend the English descriptions in which at present nothing but confusion presents itself!

His observation on the "nature" of this complaint occupy 19 pages, and are evidently the cream of the pamphlet. He passes in review successively the opinions of Eyre, Fletcher, Bidie, Stanley, Ballingall, Godfrey and Colebrooke, and arrives at this conclusion.

"For me, gentlemen, the endemic degeneration of the bones of the foot is neither a scrofulous localisation nor a tuberculous disease. Far from being a morbid *entity purely* local, it is an alteration of the bones produced by a diathesis *sui generis*. It is the occurrence of an affection, which although common in Europe and the East Indies, is, nevertheless very remarkable from the character, essentially endemic, which it puts on in this country; by its constant localisation in one foot, by the almost exclusive claim it makes of the masculine sex, that is to say, by phenomena which are observed in none of the localisations of this diathesis, which develope themselves under a sun less brilliant than our own which suffices to

create a distinct species (for the disorder) and justifies the time I have given to this work."

He then proceeds to point out wherein this disorder differs from complaints with which it might be confounded, as "scrofulous diseases of the bones," of "scrofulous diseases of the skin," called "Scrofulides," and "syphilitic diseases of the skin," "Syphilides:" and remarks.

"Now that I have told you what the degeneration is not; I will proceed to give you proofs that this malady is the result of a diathesis. For that it will suffice me to tell you the definition which has been given to the word diathesis by Hiffelsheim et Messieurs Littre and Robin.

"Hiffelsheim says it is a morbid state of the humor of the blood, manifested by morbid localisations in a discharge (humeur) or in some particular tissue."

"But since in the endemic degeneration of the bones of the foot there exists a morbid localisation in a particular tissue, it is evident that this complaint is nothing else than the manifestation of a diathesis, and cannot be a morbid local entity, the consequence of a purely local cause, for if that local cause existed it would be necessary to superadd a diathesis to explain the way of the career, slow and progressive, which characterises the development of this malady so different from all others which are the results of local accidents."

He then proceeds to treat of the pathological nature of this product, and classes it in the rank of those called Homœomorphous.

"If now we eliminate one after another each of the solid homœomorphic products of which the development and evolution cannot be applied to the endemic degeneration of the bones, we arrive at the conclusion that the myeloplastic tumours alone unite in themselves all the character of this degeneration.

"In fact, gentlemen, this species of tumour is the only one formed by isolated localisations, never reacting on the general economy, slow of progress, extending only by contact, growing again only when the operation for its removal has been incomplete, and capable of cure only by complete extirpation. In one word so much does it resemble the degeneration under consideration, that it is impossible that this malady (degeneration) can be any thing else than a tumour, of which the pathological element is made up of "myeloplaxes," produced by a diathesis sui generis, and by hypergenation (hypérégénese) i. e. in a proportion much exceeding that encountered in the substance of a bone in a normal state."

We will stop here to ask one simple question—if the development of this adventitious tissue, which our author terms

"myeloplaxoma," depends *on a diathesis* sui generis, how is it that amputation so successfully removes the complaint?

Then follows a long description of myeloplastic tissues or cells, which our space forbids us to extract, and for which we refer our readers to the pamphlet itself.

The diagnosis and prognosis follow, and are disposed of in a few energetic and sensible remarks.

The diagnosis is—now the malady is recognised as one standing per se—easy enough, but it has passed, and may even now to the casual observer, as elephantiasis.

"In the Degeneration," observes Dr. Collas, "a tuberosity or even several tuberosities open the scene. Their appearance does not react upon the economy. In elephantiasis the accession comes on with fever, vomiting, tumefaction, a knotty and painful cord on the internal aspect of the thigh, with an inflamatory enlargement of the inguinal glands: and, when the malady is fully formed, an enormous pad, the superior attachment of which is often placed near the knee, falls down before the tibio tarsal articulation, and spreads out over an enormous and deformed foot, from which it is separated by a deep furrow."

"The treatment is amputation at Pondicherry:" observes Dr. Collas, "I submitted my patients to a tonic and alterative treatment, acting on the idea that I had to deal with one of those scrofulous affections of the bones which I habitually cure with so great a facility.

"But I could neither stay the progress of the malady nor suspend the progressive alteration of the general health, at the same time I do not remember that this treatment has ever been inefficacious in cases of caries.

"No general or local treatment seems yet to have been attended with favourable results. Amputation is the last but eminently useful resource, and it speaks well for the Zillah Surgeons of Madras that out of one hundred and twenty-six recorded operations, twelve unsuccessful cases only have occurred."

We have thus passed in review, as fully as our space will permit us, Dr. Collas' pamphlet which exhibits great research, much candour and considerable ability, whether we consider the way he has worked out his ideas or the amount of information and tact he has brought to bear upon his subject. Still if the object of the brochure be, as we take it, to give a determinate name to, as well as an accurate description of,

this not new, but still imperfectly understood, complaint, we are of opinion he has failed in his object.

The myeloplastic theory is an ingenious, but we fear an incorrect one, and with the theory the nomenclature falls to the ground. We believe the fungoid theory of Vandyke Carter to be correct, and whilst awaiting further revelations in the track, the last named writer has so ably opened up, shall, as we said in our last number, recognise the complaint as a Morbus Fungosus.

Dr. Collas' work contains, as we have seen, an able review of almost all that has been written on this matter, and we strongly recommend a perusal of it to our readers.

Not more the importance of the subject than the ability of the writer, has induced us to enter upon this lengthened notice of the book.

Laying aside theoretical points upon which no certainty can exist, it is satisfactory to find all authors agreeing as to the line of treatment. But in order, if ever, to acquire a means of dealing with the disease *without amputation* we still need a more thorough and indubitable knowledge of its pathology. That Dr. Collas has attempted to give us this we have already said: we now repeat that his pamphlet is deserving of the highest commendation for its spirit of scientific research and carefully considered facts.

It is by labors such as this that science is gaining the mastery over disease; and the progressive happiness and health of mankind ensue; at once the natural and most desirable result of human genius.

Statistical, Sanitary, and Medical Reports of the Army Medical Department, for the year 1859. (Presented to both Houses of Parliament by command of Her Majesty.) London: Printed by Harrison and Sons, 1861.

We live in an age of progress. A very few years since a *blue book* on the Sanitary condition of the British army would have found no readers beyond the few who delight to obscure their intellects in the contemplation of a mass of figures, which they are pleased to recognise as statistics. We wanted the severe schooling of the Crimean war, to impress upon the public mind the great fact, that the effici-

ency of an army in the field, depends not so much upon the military prowess of its higher ranks, as upon the recognition by those in authority of Nature's grand, but simple laws, which regulate health and disease. *Now* matters are strangely altered, and it is curious to observe how the mind military is awakening to the importance of preserving in an effective condition the human machines, to whom are entrusted the safety and honor of Her Majesty's dominions at home and abroad.

The volume before us is the first fruits of the labours of the Army Sanitary Commission which met to tell us of the incapacity, the blunders, and ignorance, of those entrusted with the task of conducting a great war, *after* the mischief had been caused, and when nothing could be done to check the appalling waste of human life, which the records of the Crimean war testify to. If in this case we became wise after the event, the teaching has had its effect, and we may safely predicate that in any future war,—and God grant that the day may be far distant when our nation shall again be called upon to engage in hand to hand conflict,—the precautions adopted for the preservation of health, will, so far as human foresight can make them, be creditable to those who are responsible for advising the Government what to do, and to the Government or its high military officials, for following the advice so tendered.

The Army Sanitary Commission in the prosecution of its investigations in all matters relating to the health of the British soldier, became aware of the fact that the laborious reports and returns which executive Medical officers annually submitted to their superiors, were never systematically utilised, tabulated, or made public for the information of those engaged in the daily task of fighting against disease and death, under the adverse conditions of military life at home and abroad. Hence one of the recommendations of the Commission now for the first time carried into effect, that a *yearly* report on the sanitary condition of the British army should be printed and laid before both Houses of Parliament. Hitherto the records of the War office, and Army Medical department have only been submitted to a statistical investigation at irregular intervals and for broken periods. The statistical reports compiled by Sir A. M. Tulloch, contain much valuable information, and to that gentleman, aided as he was by Dr. Balfour, the present head of the Statistical department of the Director General's office, we are indebted for

the little knowledge the public have hitherto been able to obtain regarding the effects of colonial service generally, on the health of the army.

Thanks to the courtesy of Dr. Gibson, Director General of the Army Medical Department, a copy of the volume before us has been forwarded to every member of the Madras Medical Establishment, and we infer also to our brethren of Bengal and Bombay. The knowledge of this fact will so far simplify the task we have had assigned to us, that we shall in the following observations confine our notice of the volume to a critical examination of such points as appear to call for remark, rather than attempt a general analysis of the whole.

The reports, we observe, were submitted to the Director General in March 1861, that is some fifteen months after the date on which they became due. The portion of H. M.'s British army residing in India, receives no notice whatever, partly because a portion of the force was still engaged in the suppression of mutiny and rebellion, and therefore placed in exceptional circumstances, and partly because the returns, especially those of Bengal, had been allowed to fall in arrears, from pressure of work consequent on the mutiny. To those who have any acquaintance with the difficulties in the way of collecting, tabulating, checking and condensing the numerous documents required for the preparation of an annual return of a large army, no apology is needed for the apparent delay. The outside public knowing little of the labour involved in such reports, but generally ready enough to be captious and fault finding, will doubtless be satisfied with the explanations offered by Drs. Gibson and Balfour. For our own part we marvel that the difficulties have been got over so rapidly, considering that the whole system of classification of diseases had to be re-arranged in a form differing from that in which the individual returns had been rendered, and that for the sake of comparison, the older returns for a series of years, had to be re-modelled in accordance with the new system of classification. In future reports Dr. Balfour promises us more information respecting the causes and extent of invaliding, and some notice of sickness and mortality amongst officers, concerning which the present report is altogether silent.

The *Statistical, Sanitary,* and *Medical* Reports are made, as our readers are aware, by the officers at the head of those several branches of the Army Medical department. It has

probably been found convenient to consider the two latter, as distinct branches of the Department, but we are by no means convinced by the arguments which have been adduced in favor of the measure, that the regulations in regard thereto rest upon any solid foundation. We observe that the officers connected with these two branches must necessarily both traverse much of the same ground in framing their reports. We are of opinion that the time is fast approaching when every medical man will find his chief employment in the field of preventive medicine, and that to look upon that field as something apart from and differing from the healing art, is a grievous error, and one which, if generally followed by the rank and file of the medical profession, would be fraught with serious consequences.

Fortunately it is not so. No class of men, to their honor be it stated, have been so loud and constant in their denunciations of the evil results of dirt, foul air, bad drainage, impure water, intramural burials, and over crowding in towns and cities, as the Medical practitioners, whose precarious incomes are, in a great measure, affected by the presence or absence of the class of diseases, now acknowledged to be in a great measure under human control. Of late years the instinct of self preservation has acted upon the callous natures of Municipal Corporations and Poor Law Boards, and led to the appointing of Medical men, specially as "health" or "sanitary" officers for town districts. Practically it has been found advisable to pay a respectable salary to an officer of health, whose duty consists in hunting out evidences of preventable disease, and pointing out remedial measures, rather than to burden the poor rates with the support of the helpless children and widows of the victims of typhus fever, diarrhœa, or cholera.

In military life, however, every medical man is, from the nature of his appointment, a sanitary officer, and his duties require him to devote as much or more of his time to the preservation of health in the body of men confided to his charge, as to its restoration in the limited number who occupy the hospital wards. Hence the necessity for considering the Sanitary and Medical branches of the army, separately, except as a sub-division of office labour, appears to us, with all deference be it said, something like a mistake. Every man may not be qualified for statistical investigations, or understand aright the application of figures to the Science of medicine, but every Army Medical officer should

be capable of combining preventive with curative medicine, and taught to look upon both as a single duty, at all times required of him.

With this somewhat discursive introduction we proceed to note a few points of interest in the first of the three reports presented by Dr. Graham Balfour, Deputy Inspector General of Hospitals, and head of the Statistical Branch of the Army Medical Department.

Dr. Balfour's previous training with Sir A. Tulloch, in the analysis of the Medical returns of the army, is a sufficient guarantee of the value to be attached to the present report, viewing it simply in the light of an accurate statistical document. He has good reason to congratulate himself, and Her Majesty's Government in presenting cleaner bills of health for the year 1859, than has ever fallen to the lot of any one to do for the Home Army in any previous period. Dr. Balfour tells us that the mortality which at soldier's ages, has for an average of years, being at the rate of 17·06 per thousand per annum in Infantry Regiments serving in Great Britain, has in the year 1859 fallen so low as 7·58 per thousand—a rate scarcely at all higher than that of the civil male population in what the Registrar General terms "healthy districts."

A corresponding decrease has also been observed in the mortality of the Household Cavalry, Dragoon Guards,—Dragoons, and Foot Guards. The mortality of the Depôt Battalions, we observe, has been considerably higher—at the rate of 13·52 per thousand. Dr. Balfour, so far as we see, offers no explanation of the greater mortality in these Battalions. We infer that they are made up principally of recruits for corps on foreign service, with a smaller proportion of older men who have been sent home from their regiments for change of climate, or preparatory to invaliding. From the following extract it appears that he attributes much of the diminution in the general death rate, to the greater care exercised of late years in the selection of recruits, for it is shown that the mortality of 2nd Battalions, entirely made up of newly raised men, is lower than in 1st Battalions, composed mainly of older men.

"It cannot be attributed to the contingency of an unusually healthy season, for the mortality of the civil population, in 1859, did not differ materially from the average of former years. Nor has it arisen from a greater proportion of men being discharged as invalids, for, as will be hereafter shown, the number thus disposed

of was, except in the Foot Guards, under the previous average. It may, perhaps, have been in some degree the effect of selection, as so much larger a proportion of the force than formerly, consisted of men recently enlisted, and who may not have been exposed for a sufficient length of time to the deteriorating influences which affect a soldier, to have materially suffered in health from them. It will therefore be interesting to observe, whether under improved sanitary conditions this diminished rate of mortality can be in future maintained.

"This view of the influence of selection in reducing the mortality is to some extent borne out by the difference in that of first battalions as compared with the second battalions. The latter, being all of recent formation, were composed to a great extent of newly raised men. The mortality in each, during the year 1859, was as follows :—

	1st Battalions and Single Batt. Regiments.	2nd Battalions.
Average strength	10,085	9,536
Deaths during the year	91	58
Rates of Deaths per 1,000 of strength	9·02	6·08

On examination of the table at page 10 we find that the mortality from tubercular diseases in Depôt Battalions was double that in Infantry Regiments, so again in diseases of the respiratory organs, nervous, and circulatory, systems, there is an excess of mortality in Depôt Battalions. If these battalions are principally made up of young recruits, it is difficult to explain this excess of mortality ; supposing Dr. Balfour's inference to be the correct one, that greater care is taken at the present day in selecting recruits, and that nineteenth-twentieths of those present are, as *we* infer, recruits for corps on foreign service. The excess can only be accounted for by supposing that the few old soldiers attached to the Depôts are all worn out invalids. At least so it appears to us, in the absence of any information as the comparative strength of the old and young soldiers in these Battalions.

In speaking of the greater prevalence of *continued* fever in the Royal Engineers and these Battalions, Dr. Balfour remarks, "there is some reason to fear that the excess in "these corps is not quite unconnected with habits of intem-"perance." Whatever may be the explanation in regard to the Royal Engineers we are inclined to doubt the correctness of the inference as applied to the Depôt Battalions in which

we observe that not only is the ratio of admissions comparatively high, but the mortality also above that of any other arm of the service. The febrile attacks following a course of excess in drinking are rarely fatal. In the Royal Engineers for instance, as shown in the table, page 12, the ratio of admissions per thousand for continued fevers was 53·1 and the mortality *nil.* In the Depôt Battalions the admissions were at the rate of 43·45 per thousand and the deaths ·96. In the absence of all information on the points, we incline to the view that the continued fevers in the Depôt Battalions might be more correctly referred to defective sanitary arrangements than to the effects of intemperance.

That intemperance is a powerful excitor of morbid action, there can be no question, but the evidence is yet wanting to show that excessive indulgence in alcoholic drinks predisposes to miasmatic diseases. On the contrary we have at our command much valuable data proving that, as regards India at least, a larger proportion of abstemious and temperate men fall victims to this class of diseases, than drunkards.

It is satisfactory to learn that the improvements effected in the quarters of the Foot Guards in the Tower of London, have been attended with fewer admissions under the heads of Continued Fever, Diarrhœa and Dysentery. Better drainage and wholesome drinking water have been effective here, as they are, and will be, in all parts of the world, in diminishing the tendency to sickness and mortality, from alvine fluxes.

Rheumatism, we are told, "has not undergone such a "reduction as might have been anticipated from the much "greater number of young men in the service than during "the previous period." Dr. Balfour, we think, correctly accounts for this fact, in suggesting that much of the rheumatism may be due to the greater prevalence of venereal.

And this brings us to a consideration of the expediency of accounting for all rheumatism in the Army official returns as due to miasmatic poisoning.

The learned doctors of the Statistical Congress, held at Paris in 1855, have been pleased to rule that it shall be so, although every man of practical experience in his profession must be alive to the fact, that where he meets with one case due to malarious influences, he will find three or more which have their origin in syphilitic poisoning, or faulty assimilation of food.

Venereal diseases, we observe, figure quite as largely in the returns of the Home army, as they unfortunately do in those of Indian troops.

The latter are, in some respects, better off than their brethren at home, seeing that efforts have been made in this country to exercise some control over the hordes of prostitutes, who minister to their sexual appetites.

It is quite true that these efforts have not been in every instance successful in staying the ravages of the loathsome diseases which occasion so much inefficiency in our troops. The difficulties in the way of exercising complete police supervision over the bazaar women, have been found practically insurmountable, under existing laws. Some special legislative enactment is evidently required before the Lock Hospital system can be said to have had a fair trial in India.

Notwithstanding the success which has been attained in continental towns, by judicious police supervision of loose women, the British nation is pleased to ignore the open profligacy of its large towns, and the equally important fact, that one-fourth of its army annually passes into hospital, and remains there an average period of 23·22 days, consequent on the contraction of diseases which the experience of the Prussian army proves to be almost entirely under control. In round numbers the services of 2,417 men, of the troops in the United Kingdom, nearly equal to three Regiments, are constantly lost to the State.

Well may Dr. Balfour remark in conclusion, "it surely "becomes a question of grave importance by what means "these diseases can be diminished."

The "means" are pretty generally understood, but the dread of interference with the sacred liberty of the subject, is too strongly rooted in the national mind, to allow of legislative recognition of the all prevailing vice of prostitution, and its direful consequences. Fifty years hence perhaps, we shall be a wiser, if not a better, nation.

Delirium Tremens is a disease which figures largely in Army returns. The proportion of admissions in the Home Army, we observe, varies from 5·63 per 1,000 in the Royal Engineers, to ·34 in the Foot Guards. The very low rate in the latter is attributed by Dr. Balfour, not to any remarkable habits of temperance, but to the nature of the ordinary drink, which is stated to be *beer*. This is a curious and instructive observation, and tends to throw much light upon the question lately discussed in the pages of this jour-

nal, as to the causes of the observed differences in the admissions and mortality in various Regiments from Ebrietas and Delirium Tremens.

That the effects of malt liquors and ardent spirits when indulged in to excess, vary widely, is a fact well known. We need only look at the burly frames of the brewery draymen, who use the former, and the shrivelled, shrunken, bodies of confirmed gin drinkers, to see that all alcoholic drinks do not correspond in their physiological action. This leads us to a consideration of the question whether the train of nervous symptoms following a debauch, or the continued use of intoxicating drinks, is really the effect of the pure alcohol, or of the subtle, deleterious compounds which, in most spirituous liquors, are united with it. It is a well known fact that new rum or arrack is unfit for issue to troops. These liquors require to be kept a considerable time before some of the volatile but highly injurious products of distillation are got rid of. New brandy, whiskey, or gin, are probably quite as injurious in their action. Brandy is the usual drink of intemperate livers amongst the commissioned ranks, or non-official portions of the European community in India. A very inferior class of brandy finds its way into the shops of retail dealers at Mofussil stations, and there cannot be a doubt that the excessive consumption of such deleterious liquor is more injurious to health than a purer spirit would be.

We have before us evidence of the most conclusive nature as to the great fatality of delirium tremens in brandy drinkers, and considering the inferior quality of nine-tenths of the brandy imported into this country, we cannot but attribute some portion of this excess to the poisonous quality of the liquor consumed.

Bazaar arrack, which is often an ingenious combination of stramonium, red pepper, and badly distilled spirit, is unquestionably much more injurious to the health of the soldier than the unadulterated and well seasoned article supplied to him by Government as a ration. So long as the tipplers confine their potations to liquor of the latter quality, admissions into hospital from Delirium Tremens and Ebrietas are rare; but so soon as they get into districts where inferior liquor is cheap and easily attainable, the cases of disturbance of the nervous centres begin to increase. This fact has, we think, been already illustrated in the table attached to Dr. Ranking's paper at page 230 of

present volume. The 2nd Regiment E. L. I., at Secunderabad, had a large number of admissions due to intemperance. On arrival at Tonghoo, where the Commissariat liquor was alone procurable, the proportion of such cases diminished in a most remarkable manner and continued very low for the period the corps remained at the station. On its return from Burmah to Trichinopoly, the effects of drinking again became manifested in the shape of constant admissions and re-admissions for Ebriositas and Delirium Tremens.

Delirium tremens, as a rule, will always be more prevalent in a corps composed of old men, than in a newly raised Regiment. Dr. Balfour attributes the rather high ratio of this affection in the Depôt Battalions 4·35 per thousand, to the number of old soldiers, "who in the course of their "colonial service have acquired habits of tippling, which even military discipline is insufficient to restrain."

It is not a difficult matter to explain how the British army on Colonial or Indian service, acquires this pernicious habit, seeing that each growing lad who goes on foreign service, has every possible inducement and facility for consuming six fluid ounces of raw spirit per diem, in addition to a pint of beer or porter, and this too without forfeiting his character for temperance or sobriety. It is not our intention on the present occasion to discuss the grave questions involved in the continuance or discontinuance of the spirit ration to European troops. The subject is beset with difficulties, but the present Canteen regulations we think admit of modification and improvement, at any rate to an extent which would prevent the young soldiers from acquiring the habit of dram drinking.

Diseases resulting from accident or violence.

In the United Kingdom, as in India, the greatest proportion of admissions into hospital for accidental injuries, occur in the Cavalry and Artillery. The *mortality*, it is stated, is about equal in all branches of the army. "The "most common cause of death has been drowning, by which "26 men lost their lives in 1859."

Dr. Balfour does not tell us how many of these 26 lives might have been spared to the State, if the natural ability to swim, which man possesses in common with other animals, had been made a part of the soldier's training. There is no exercise so healthful and invigorating, in this country at least, as swimming, and we hold that every recruit should

go through a course of instruction in the art, before he is pronounced a thoroughly trained and efficient soldier. From the frequency with which death occurs by drowning in India, we are disposed to consider, that very much of the mortality from this cause might be altogether prevented, and the same time the army made more efficient for the contingencies of field service, if our suggestions were fully acted upon.

We say nothing as to the development of physical power which a systematic training in the art of swimming causes, although we believe that the exercise contributes in no mean degree to the preservation of healthy action in all organs of the body, and consequently tends to the prolongation of life. Plunge baths are to be found in most stations occupied by European troops, or if they do not exist, no great difficulties should be found in constructing them, and all that seems wanted, to make them efficient, is a regulation compelling every recruit to be able to swim a certain distance before he is dimissed his drill.

Corporeal punishment, we are informed, was not once inflicted in the Life Guards or Royal Engineers. In other arms of the service it varied from 1·68 per thousand, to 18·43 in the Military train. Dr. Balfour gives us a curious insight into the privileges enjoyed by the commanding officers of the Household Cavalry.

He tells us that six men were discharged for "bad conduct," and twelve, "the Regiment having no further occasion for their services." With such facilities for getting rid of individuals who indulge in a course of conduct disgraceful to themselves and their Regiment, it is no wonder to find that the Household Cavalry stand so high in the list of healthy troops. We cordially agree with Dr. Balfour in thinking it a great pity "that a similar process of elimina-"tion cannot be applied to the other branches of the service."

Perhaps, if the inducements to good conduct were so great in other branches of the service, as in the Horse Guards, a class of men would be enlisted, for whom the sterner measure now required for the subjugation of brutal violence and ruffianism, would be no longer necessary.

In discussing the subject of re-vaccination Dr. Balfour tabulates the results of the practice as followed in 1858 and 1859 in the British Army.

We learn that it was generally satisfactory, as compared with the results obtained in the Wirtemburg, Bavarian, and

Prussian armies, where it has been adopted for many years past. Re-vaccination was pefectly successful in 346·1 cases, per 1,000, of British recruits operated upon, partially successful in 220·9, and useless in 433. The experience of the Wirtemburg and Prussian armies, as to the protective power of re-vaccination is too decided to admit of any doubt as to its efficacy, and there is every reason to hope that the European soldiers in India, who a few years since were subjected to the process, may escape the epidemics of small pox now so generally prevalent.

Erisipelas, we are told, followed the operation of re-vaccination in four cases in the Depôt Battalion at Parkhurst, Isle of Wight, and in one instance sloughing followed to such an extent as to render amputation at the shoulder joint necessary. These, however, were the only accidents reported in connection with 32,000 cases of re-vaccination, and were probably dependent more upon the prevalence of erisipelas in the neighbourhood of the barracks, than upon the irritation of the very simple operation of vaccination.

The section of Dr. Balfour's report which reviews the extent of invaliding in the army, is somewhat meagre, and we are promised a fuller report as to the causes of disability, in the review of the health statistics of the Army, for 1860, which may shortly be looked for. In the meantime we will pass on to the consideration of other subjects of interest.

In noticing the influence of age and length of service in increasing mortality, we see that up to the age of thirty, the soldier's chances of life are about equal to those of the civil population at corresponding ages. Above thirty, the adverse influences of the soldier's life begin to tell, and the ratio of mortality to exceed that of the civil population. Dr. Balfour is inclined to think, and in this we entirely agree with him, that the very favorable sanitary condition of the British troops in the United Kingdom, in 1859, was in a great measure because that portion of the army contained an unusual number of young soldiers, who had not been long enough in the service to succumb to the deteriorating influences of garrison life. We must confess that we are less sanguine than Dr. Balfour appears to be, as to the amount of diminution in sickness and mortality, to be effected through the agency of sanitary improvements in barracks and hospitals. We are of opinion that the dreary monotony of his life, his enforced idleness, and facilities for dissipation, must affect the soldier unfavorably, and

tend to age him prematurely. While we doubt if the more severe labour, and constant bodily or mental occupation of the bulk of our civil population, are causes recognised as they should be, as tending to longevity. The great bulk of our population are worse provided for in house accommodation, food, and clothing, than the soldier. If the barrack is occasionally overcrowded, so is the squalid cottage of the agricultural laborer, or the single room of the city artizan. If the barrack has its noxious urine tubs, the residences of the civil poor have a fine show of dust heaps, cess-pools and privies, to poison the air and water, they breathe and drink.

We have no hesitation in stating that notwithstanding all that has been done, and that remains to be done for increasing the material comfort of the soldier, the conditions of military life must always, so far as the rank and file of the army are concerned, be prejudicial to longevity.

The experience of future years will, no doubt, show a gradually diminishing death rate, but it must be borne in mind that the causes which diminish sickness and mortality in the army, are equally active in producing the same effects in the civil population. We very much question the possibility, which Dr. Balfour hints at, of keeping the rate of mortality amongst soldiers, so low as that of the civil population of the most healthy districts at corresponding ages.

We have neither time nor space to follow Dr. Balfour through his analysis of the returns of all H.M.'s troops serving abroad or in the colonies. The Indian returns, as previously noticed, are not included, so that the reviewer labours, in this instance, at the disadvantage of being unable to place before the reader, those facts and conclusions which, to the Indian Surgeon, would be of more interest than any other portion of the statistical report.

Of the troops serving in the Mediterranean, we observe that those at Gibraltar were healthy taking the average of a period of ten years as a means of comparison. The death ratio being only 7·76 per 1,000 of strength.

Dr. Balfour does not seem to have quite made up his mind as to the causes which tend to the production of continued fevers. For instance in speaking of the Royal Engineers and Depôt Battalions in the United Kingdom, page 13, he accounts for the excess of fever in those corps, by its "not being quite unconnected with habits of intemper-"ance."

At page 32, speaking of the prevalence of fever of a con-

tinued type at Gibraltar, he observes, after a careful examination of all the reports, "we are unable to attribute the "increase in fevers to any other causes than the overcrowd-"ing of the barracks."

At page 33, we read that "fever may also have been in "some degree attributable to the state of the drains." Now all these causes may, or may not, have contributed to the production of continued fevers. If the fever at Gibraltar were typhoid, and this is the most common type we believe in temperate latitudes, we have pretty good evidence in support of the view that intemperance and overcrowding of barracks had nothing whatever to do with it. We object to the want of clearness, shown in alluding to the causation of continued fevers. We cannot suppose Dr. Balfour to be altogether ignorant of the labours of Jenner, Murchison and Budd, in defining the specific nature of the various diseases lumped together in the official returns as continued fever, and in a report coming from one so well versed in the knowledge of the value of figures as applied to practical medicine, we naturally expect something more definite than vague allusions to the influences of overcrowding, intemperance and stinking drains. We look upon these "foregone conclusions" of the author's as blemishes in an otherwise exceedingly accurate and valuable report.

The Report of the head of the Sanitary Branch, Inspector General of Hospitals, Dr. Logan, is interesting chiefly that it enters into the details of arrangements made by the Medical Department for conducting its operations during the late China war. The suggestions offered by the Director General to the Minister of State for War on this occasion appear to have been eminently judicious, and the Memorandum furnished to the Sanitary officer who was attached to the Quarter Master General's Department of the army in China, bears evidence that every precaution which human prudence and foresight could suggest, was employed on this occasion.

The actual results achieved, after the creation of this novel appointment, are well known. For the first time in modern history, our army was actually healthier on field service in an enemy's country, than it would probably have been if subjected to the wearisome monotony of barrack life, in any portion of the United Kingdom. How far this result is to be attributed to the sanitary precautions adopted, we are unable to say. But this we know, that

many officers and men who returned from Pekin to this Presidency in the early part of 1861, looked as if they had enjoyed a year's furlough to England, rather than the exposure and hardships of a campaign. The climate of the north of China, evidently, had a wonderful effect upon those European troops which were sent from India. The Commissariat and Medical arrangements were perhaps more complete than in any former war. It was perhaps a fortunate combination of circumstances for the Sanitary officer that he commenced his duties at such a time, and place. The home authorities, we observe, complacently take all the credit attached to the satisfactory sanitary condition of the expeditionary army in the north of China, to their foresight in appointing a sanitary officer, and say very little regarding the condition of the reserve troops located at Hong Kong, which, we understand from private sources of information, suffered in no ordinary degree from the pestilential effects of the climate of that island. Nothing was said in Parliament as to the influence of the cold and bracing climate of the north in preserving the health and efficiency of the troops. The new system, its supporters appear to think, has proved a grand success, and henceforth wars are to be conducted, without the risks of want, privation, and pestilence being added to those of battle. Time, and a more extended experience, will perhaps modify in some degree the views of those who, as we consider, have attached an undue importance to the results of the system, which has for the first time been tried in the late China war.

We hope Dr. Rutherford, the Sanitary officer, understood clearly the very copious memorandum of instructions furnished for his guidance. For ourselves we must confess we should have felt considerably puzzled had we been requested, as in para. 15, to furnish a fortnightly report, "embracing all the specialities of sanitary occurrences and transactions, which had taken place during the period." In the absence of any definition of the meaning to be attached to the expressions "sanitary occurrence," or "sanitary transaction," the task which fell to the lot of that able officer, would have been too much for us.

Dr. Logan has selected various topographical reports for publication, and amongst others of Deesa, Mount Aboo, Umballa, British Columbia and British Guiana. It is intended to publish in future reports all topographical descriptions of foreign stations which may be of sufficient

interest and importance to merit the distinction. Our readers are aware that what is now being done by the Director General for the Medical Department of the British army, was accomplished many years ago by the Madras Medical Board, so far as every Military and Civil station of importance in this Presidency is concerned.

The "Medico-topographical reports of the Madras Presidency" are, to this day, so full and accurate, (except in the description of barracks and hospitals since erected, or provinces newly occupied, such as British Burmah) that scarcely anything has been left for the zealous Medical officer of the present period to describe. This valuable record is now very difficult to obtain, it being, we believe, out of print. A new edition, bringing down to the present period the statistics of sickness and mortality at the several stations—giving a description of new hospitals, barracks, hill sanitaria, and a minute topographical description of the several stations occupied by Madras troops in British Burmah, is a desideratum, and we hope to welcome the announcement of such an edition at no very distant date.

With reference to the topographical reports in the volume before us, we would call attention specially to that of British Guiana, by Surgeon Major H. C. Reade, as being exceedingly well drawn up, and highly creditable to that gentleman's industry and powers of observation.

The strictly Medical portion of the report is furnished by Dr. Mapleton, Deputy Inspector General of Hospitals, who briefly adverts in an introductory letter to the chief transactions of the department during the year 1859.

He tells us what was done in the way of fitting up hospital ships for the Chinese expedition, and gives us in an Appendix the cost of converting the steam-ship "Melbourne" into a floating hospital.

In the "Medical and Surgical Transactions" are given extracts from the Medical reports of Regimental Surgeons, details of interesting cases, &c. In this portion we observe a quotation from the annual report of Dr. Barclay, H. M.'s 43rd Light Infantry, on Insolation. We published in our 1st volume a paper by Dr. Barclay, which may be regarded as an amplification of the remarks in the annual report—a paper which, in the opinion of some of the best physiologists of the day, gives the most lucid and philosophical explanation of the morbid action of heat upon the system,

of any contribution yet made to the literature of this obscure subject. We are consequently pleased to see that the portion of the report relating to it, has been considered worthy of the honor of appearing in the volume before us as a permanent official record.

A list is given at the end of the volume of all Medical officers belonging to the British army on the 31st December, 1859, and we find that there were no fewer than 1,075 on full pay on that date.

It would be a convenience we think to most Medical officers to be able to refer to their actual position in the general list of the department, and, with all deference, we would hint that the publication of this general list, in addition to the Staff and Regimental lists, would be acceptable. If we want to find by date of appointment the relative positions of, say, Drs. Smith employed on the Staff, and Brown posted to a Regiment, it takes us more time than we can well spare to discover the dates of their respective commissions. At the same time our friends Smith and Brown have, so far as we can see, no means of ascertaining who is above or below them in the general list, a very important consideration when those gentlemen are, by virtue of their seniority, verging upon promotion to a higher grade.

In concluding this notice we have much satisfaction in acknowledging that we have derived both pleasure and profit from a somewhat careful perusal of the volume before us. That the regular publication of such reports will give a great stimulus to Military Medicine and Surgery, is certain, and we augur well for the future position and prospects of the Army Medical Department, under its present enlightened guidance, when so many motives of personal and professional interest are in existence to induce executive Medical officers to discharge with credit to themselves and immense benefit to the State, the responsible duties entrusted to them.

A System of Surgery, Theoretical and Practical, in Treatises by various Authors. Edited by T. HOLMES, M.A. Cantab. Assistant Surgeon to the Hospital for Sick Children. In four Volumes. Vol. I. London: J. W. PARKER and SON, 1860, pp. 825.

WE fancy we can hear some one exclaim, upon reading the above title, "What! another book on Surgery? Surely we have treatises enough, both ancient and modern, to satisfy the needs of all the Surgeons that now are, or that will be for years to come!" Yes! we reply, another book on Surgery: and let us have as many books on Surgery like this as can find authors skilled enough to produce them, and publishers bold and liberal enough to undertake the chance of their success.

But can this be legitimately called a "System" of Surgery? Is it possible for a presiding genius, in the form of an Editor, so to arrange and shape "treatises by various authors," as to avoid, on the one hand, the Scylla of the advance of opposed opinions, whilst he escapes, on the other hand, the Charybdis of the loss of that honest and firm expression of decided views, without which the writings of those whom we look upon as teachers would lose half their charm and value.

Whether the title has been well selected or not, we have no hesitation in accepting this work as, so far as we can see at present, an admirable attempt "to unite into a complete system the opinions and experience of many men, most of them Hospital Surgeons in London, and most of them writing upon subjects of their own choice." Such, we learn from the preface, is the object of this work; and we are further told that "for the plan of the work the Editor must be held responsible; the opinions expressed in each separate essay rest upon the authority of the writer, whose name is signed to it."

We will just glance at the plan which the Editor has drawn out, so as to enable our readers to judge how far he is qualified to undertake the superintendence of a work, which appears to us so well conceived and of such magnitude and importance that it cannot fail, if well arranged and supported by adequate contributors, to mark an era in the literature of Surgery.

The arrangement adopted is as follows:

1. The Diseases which affect the whole system.

2. Injuries which involve either the whole or a large part of the body, or which may be met within in any region. These two parts comprise the whole subject of Surgical Pathology.

3. The various local injuries, described in an anatomical order.

4. The principles of Operative and Minor Surgery, and of the employment of Anæsthetics.

5. The Surgical Diseases of the various organs of the body, arranged according to the function of the parts affected.

6. An Appendix comprising the principles of Surgical Diagnosis, of the Surgical Pathology and Treatment of Children's diseases, the construction and management of Hospitals, and various miscellaneous matters.

Remembering that the book is composed of treatises by various authors, we do not think that any better arrangement than this could have been chosen.

The second volume has reached us, but we prefer to notice the first by itself. We may just observe that the book is beautifully got up. The paper is very good and the type remarkably clear. There are but few illustrations to this volume, and we think that some more might have been advantageously introduced.

The volume before us—with the treatise on Gunshot wounds, which forms the first essay in the second volume—comprises the first two heads of the arrangement, and, therefore, General Surgical Pathology. It opens with an essay which can scarcely be perused without exciting the admiration, if not contributing largely to the information of the reader. We do not know which to admire most, its grand conception or its remarkable execution. We have never previously had the advantage of studying so admirable an essay on Inflammation as that which Mr. Simon here presents to us. It is an enlarged edition, an elaboration of the views put forth in his "Lectures on General Pathology," delivered at St. Thomas's Hospital Medical College, and first published in 1850. To the present writer, Mr. Simon's description of the inflammatory process is familiar, as he has often been a charmed and delighted listener to that Master in Surgery, whilst he discoursed upon the subject in his own terse, clear and vigorous style. But in the present

essay his views are, as just said, more elaborately put forth, as it is natural they should be in a work of this character, which, it may fairly be expected, will have to stand the test of all time. It is true there is a mannerism about Mr. Simon's writings, but to look upon this mannerism in the light of an affectation, as some people profess to do, is not just. To us, the modes of expression which he selects appear to afford opportunity for the clearest enunciation of facts and opinions, whilst, at the same time, they lend as much charm to his essays as the latter derive from the vigour of intellect which they manifestly display.

Upon the subject of his essay Mr. Simon says :—

"It is of large scope and of equally large importance. To any one who makes with it his first acquaintance, the study seems to branch almost throughout the whole subject-matter of Surgery. Nor does a more critical enquiry tend very greatly to abate this first impression. For among the infinite varieties of surgical casualty and disease, singularly few are the cases which do not at some moment of their course—either in their origin, or in their complications, or in their treatment, involve an appeal to those laws of textural irritability which determine the phenomena of inflammation. And assuredly it is no exaggeration to say, that rational surgery depends more upon a knowledge of the inflammatory process than upon all other pathological knowledge put together."

Under the head of Etymology, Mr. Simon remarks that from time immemorial, both in European and Eastern languages, words which denote the physical fact of *having been set on fire,* have been used to express the peculiar morbid change in the textures of the living body which we ourselves designate by the term "inflammation ;" and this not only with reference to the results of local injury, but also where the phenomena arise independently of exterior lesion.

For the description of the process, an ordinary case of carbuncle is taken as characteristic and typical. The main physical facts are plainly detailed, and Mr. Simon writes :—

"If they be stated in their most general form, with reference to the nature of their result, the entire process may be said essentially to consist in a *local change of material.* LOSS OF SUBSTANCE and REPRODUCTION OF SUBSTANCE are the simple totals into which, physiologically speaking, the details admit of being generalised ; and especially it deserves notice that these two opposite actions are manifested thus simultaneously in the part—so that at no stage of the disease is there any show of destruction without something of renewal at its side."

The writer proceeds to show that these actions, in general

meaning, though obviously not in form or degree, have some affinity to the ordinary process of textural nutrition.

But "as regards the difference between these actions when they occur in health, and when they occur in inflammation, it may here suffice to observe, empirically, that the *appreciability of the opposed results* is in itself a differential mark of inflammation." In the process of normal nutrition there is no contrast "between the respective elements of declining and nascent tissue." Whilst "a more or less considerable rubbish of old texture, and a more or less considerable germination of new forms—these, side by side, and in contrast, are pathognomonic in the anatomy of inflammation."

Inflammation is first considered as a destructive process; and to the different forms of inflammatory destruction—which, Mr. Simon correctly says, are less different than the superficial observer might believe, and pathologically, cannot be separated,—the terms gangrene, ulceration, and liquefaction are applied.

Gangrene;—the death of a bit of body, and its abandonment to the same sort of unmixedly chemical changes as it might undergo in the dissecting room. Great grangrenes, such as the sphacelation of entire limbs, are but extreme instances at one end of a very extensive scale; the pathological application of the word is not identical with the surgical application of it, for the raised cuticle of a common blister consists of material irrecoverably dead, and every epithelial desquamation is in reality the shedding of an epithelial slough.

Ulceration;—the process by which holes are made through the surface-textures of the body; differing from gangrene mainly in the fact that it proceeds more gradually and molecularly.

And *Liquefaction;* the process, by which the covered in textures of the body are enabled to waste away their material; and in this wasting no surface gap is made but the tissues become so absolutely disintegrated and fluidised as to be capable of soaking through the membrane of capillary blood-vessels.

"And thus the destructive acts of inflammation form, in their several kinds and degrees, one long series, which, with no sudden breaks or contrasts in it, extends from the confines of normal texture-waste to the utmost excesses of gangrene."

Mr. Simon proceeds to guard the student against overlooking the reality of the destructive changes as an essential part of inflammation. He takes illustrations from inflamed muscle; from inflamed bone,—as, for instance, in a carious vertebra; from inflamed nerve,—as, for instance, near to where it has been cut in amputation; from the hard textures of an acutely suppurating joint; from an inflamed sclerotic,—the result of which is so often staphyloma; and from the products of inflammation furnished by mucous and serous membranes, and by glands; and he shows that, in one and all, the acts are those of destruction.

"It is to be observed that in all these changes the process of inflammatory softening involves something more than the mere deliquescence of tissue. The material which ceases to be consistent does not retain, as if only in a more watery state, its original constitution. In beginning to soften, it also begins to show new ingredients,—the result, as will presently appear, of new combination of its elements. And the common mark of this chemical change is that oil-drops, sometimes with other forms of free fat, become, to a greater or less extent, visible in the microscopy of the softening part; so that often, during some stage of the process, fat appears to be the principal residue of texture.

"How very important are the bearings of this fact, can only be learnt by considering under what other circumstances (apart from inflammation) the albuminous and gelatinous materials of the body undergo fatty transformation. For such study enables us to say that universally, when this change occurs, its occurrence has the meaning of *degeneration*. And the fact that it habitually forms part of inflammatory changes of texture would therefore, in itself, if there were no other proof, be sufficient to show that inflammation includes a devitalising process.

"This argument is so important, that a momentary digression may be excused, in order that the general meaning of non-inflammatory fatty transformation may be clear. Universally, we have said, it denotes degeneration:—not simply because fat is of less chemical complexity—is nearer to the inorganic world, than albumen or gelatin; not simply because fat, infiltrated through a part, is, so far as we know, incapable of contributing to the mechanical or dynamical usefulness of the part; but further because the circumstances under which the change occurs, when apart from inflammation, are, without exception, circumstances which have in them the nature of death. That it occurs to an immense extent in the tissues of the aged, is but an illustration of this truth:—it is, so to speak, with a foretaste of death, that as we near the natural end of our lifetime the heart and arteries, and to a less extent the voluntary muscles and the hard textures, undergo this irreparable change. That it

occurs also in the textures of the placenta towards the close of utero-gestation is an exactly equivalent fact,—that it occurs namely in them, as they verge on the natural term of their existence—occurs in them as relatively senile, in contrast to the textures of mother and fœtus which show no traces of such a change. And these facts get their complete intelligibility, when it is further known that fatty transformation occurs abundantly after death :—witness the now well known conversion of dead flesh into adipocire ; the enormous fattiness of certain geological strata in which animal remains are abundant ; and, not least, Dr. Quain's experimental demonstration that muscular substance, perfectly healthy at the time of death, will, within a few weeks, if kept moist without access of air, assume all the characters of fatty degeneration.* * * *

"And reverting now to inflammation, we may repeat that, whenever it is in progress, the textures which it affects present more or less of this change—now identified as degenerative. That gangrenous masses undergo putrefaction because they are derelict of life, is not likely to be questioned ; but that also the processes of ulceration and softening are essentially cadaveric changes of texture, has required more ample exposition."

We make no apology for having given so long an extract as the above. It affords a good example of Mr. Simon's style of writing, his clearness, freshness, and exhaustiveness ; and, at the same time, it prominently puts forth,—what is so very frequently overlooked,—the reality of destructive change as the initial act of inflammation.

The author next treats of the process as a productive one. The texture is the seat of increased growth, and, therefore, is more than commonly infiltrated by fluid blastema. This excess of fluid blastema can only result where blood circulates in excess,—where there is a local hyperæmia. So that there are to be considered, (1) the changes in the local circulation, (2) in the local blastema, and (3) in the local growth.

With reference to the changes in the local circulation we are told that

"Thirty years ago, it was the common English pathology, that 'an altered action of blood-vessels' was the essence of an inflammatory process and accounted for the other phenonema of inflammation. It was not then known, as it is now known, that the relation of blood-vessels to textural growth is merely ministerial. There was a vague notion that the 'action' of small blood-vessels built up the tissues in a kind of bricklaying way ; and that those vessels, as if by differences of manipulation, could plaster their product into this shape or the other—into bone or muscle, into tubercle or cancer. That tissues are independent of blood-vessels except for the admi-

nistration of food and the removal of refuse; that they develop and grow by the life of their own germs, and according to the several patterns which they respectively inherit,—this doctrine, now almost universally accepted, has only been possible since the great discovery of Schwann."

That this "altered action of blood-vessels" has, until a comparatively recent period, been looked upon as the initial act of inflammation must be acknowledged. Whoever peruses the article "Inflammation" in Dr. Watson's Lectures on the Practice of Physic, or Dr. William's Definition of Inflammation as "too much blood in a part, with motion (of that blood) partly increased, partly diminished,"* or Dr. Billing's statements that "inflammation or congestion are but varieties of distended vessels,"† and that "the diminution of nervous influence, rather than alteration of tissue, is the proximate cause of the relaxation of the capillaries,"‡ must at once admit that the views which were commonly held at the time when these gentlemen wrote, were very opposite to those which are here enunciated by Mr. Simon. It is true there was one far seeing physician, the late Dr. Alison, who wrote as follows:—"a peculiar perversion of nutrition or secretion we may hold to be essential to the very existence of inflammation." This view of Dr. Alison's followed his advocacy of Haller's notion that the circulation of the blood must be ascribed in part to properties of vital attraction and repulsion, by which the blood is drawn into, or repelled from particular parts, independently of all motion of the living solids. We will say nothing of the repellent force, but what a bright dawning of the truth was this "attractive power" of the tissues, which, we believe, originated with Haller! Mr. Simon notices in a foot note that in all probability the physiological views, as to the normal relations of blood and tissue, which are identified with the doctrine that "the phenomena of inflammatory turgescence are primarily the result of an increased *attraction* which the inflaming tissue exerts, as it were suctionally, on the blood coursing within its capillaries," were entertained by Haller; and he further quotes from Prochaska to show that he held similar views; and from Hebenstreit, and from Burdach, to prove that they applied these physiological teachings to the

* Principles of Medicine, 2nd Edition, 1842, p. 252.

† First Principles of Medicine, 5th Edition, 1849, p. 26.

‡ Op. Cit. p. 29.

phenomena of inflammatory turgescence. Dr. Williams* controverts these views, but we presume our readers generally will now admit them. Should they be inclined to doubt them we would advise a careful perusal of Mr. Simon's arguments, drawn from what is observed not only in the animal but also in the vegetable world.

The changes in the local circulation in inflammation need not, then, further occupy us. All admit the hyperæmia, and that it is essential to the process. All admit a dilated condition of the capillaries and small arteries, with a stasis of the blood. But what we must notice is that this is *not* the initial act.

"A part does not inflame because it receives more blood. It receives more blood because it is inflamed. * * The enlargement of blood-vessels which permits this afflux is due, not to any mechanism acting *a tergo*, but to an influence primarily exerted on the part.* * * * *

"What is the channel of influence for determining this sympathetic phenomenon? Possibly, but not necessarily it is nervous. When capillaries lose, as though by extrinsic suction, a portion of their fluid contents,—when spaces of capillary network are obstructed by the stasis of corpuscles, differences of tension, equivalent to differences of contact, must be experienced by those ultimate arterial branchings which are in nearest relation with the derangement. That these—as it were, *contactual* impressions on the artery occasion its changes of calibre, may be regarded as in the highest degree probable. But whether directly or indirectly, must at present remain uncertain; whether, namely, the impression and influence proceed continuously from element to element along the contractile arterial tissue, or, on the contrary, be centripetal and reflectible, and require nerve-fibrils and ganglion for their propagation."

Upon the changes in the local blastema, Mr. Simon remarks that every surgical student must have noticed how apt an inflamed part is to become "more than commonly juicy," and after giving instances he enquires the meaning of this "greater juiciness."

"It is an exaggeration of that natural moistening of the tissues which is necessary for their nourishment,—an exaggeration in respect of quantity, and also (if the phrase may be allowed) an exaggeration in respect of quality."

He shows that the fluid which normally transudes through the walls of capillaries is "in general chemical correspondence" with liquor sanguinis, but contains less dissolved

* Op. Cit. pp. 254—255.

matter,—less salts, and less or no albumen. Under increased pressure, it comes nearer and nearer to the characters of liquor sanguinis. The "effusions" of inflammation present the characteristics of a blastema transuded under more than normal pressure, or with less than normal resistance ; but it has two essential characteristics which cannot be due to any mechanical influence :—first, the inflammatory effusion tends to contain certain ingredients—chloride of sodium and phosphates, in larger proportion than that in which they exist in the blood ; secondly, it terms with living organic forms.

"Universally, where there is inflammatory effusion, characteristic cells are to be found,—cells of which the pus-cell is the type. Up to that type there are visible stages of development, and from that type there are visible stages of degeneration ;—on the one hand immaturities, on the other hand senilities, of the product ;—the former chiefly represented by cytoblasts and by cells so small that the distinction of nucleus and cell-membrane is only just distinguishable in them ; the latter chiefly represented by cells which become larger and more filled with oil-drops in proportion as they become ready for dissolution. The typical form, thus approached and thus departed from, is a thin-walled globule of about $\frac{1}{2000}$ of an inch in diameter, pellucid, containing some semifluid albuminous matter, and possessing a compound or simple nucleus, which is best seen when the microscopical specimen is slowly acted on by water or very diluted acetic acid. This cell is insusceptible of ulterior development. It may remain long stationary, but it cannot contribute to tissue. It can only degenerate and decay. And its morphological meaning assuredly is, that it represents the miscarriage of what was intended to be texture. The local germination has been excessive, and (in proportion to various circumstances) parts of it digress into this sterile course of development."

Concerning the changes which take place in the textural elements themselves, our author points out that they are best observed and comprehended by an examination of specimens taken from just beyond the limits of local excitement, continuing the analysis gradually from healthy to inflamed texture ; and then the observer will not fail to perceive that "he is amid the most wonderful scene of textural development."

We cannot omit the following splendid passage.

"Outside the central slush of gangrene or abscess—outside what for the moment may be regarded as mere pathological confusion, he can trace the orderly commencement of changes which have that

apparent confusion for their result. Farthest from the focus of inflammation and unparticipating in its excitement, there lie before him the nuclei of healthy texture, living their common life ; nearer to the morbid influence he sees this germinal material growing according to its type, and by subdivision becoming prolific ; nearer still, he sees, at first sparsely, afterwards in overwhelming abundance, those various organic forms (hitherto unexplained) which characterise inflammatory effusion ; and little by little he comes to learn that these organic forms, having the pus-cell for their type, are derivatives of textural over-growth—of an overgrowth in which the textural germs have multiplied to excess, and the intercellular material is absent. Combined with those forms, or in their stead, he sees other textural elements, which during simple hypertrophy, have been overtaken by death and degeneration ; and beside them all, of course, he sees those other textural changes which have been described as appurtenant to inflammation—the changes of mere death and decay. But less by the latter than by the former signs —less by seeing mere gangrenised texture amid the produced pus, than by interpreting the pus-production itself, and by interpreting the textural concurrence of hypertrophy and degeneration, he learns what hitherto unavoidably has been left unsaid,—that the two great factors of inflammation, increased production and increased death, are not only to be seen asunder in different compartments of the area of disease, but are to be seen jointly expressed in single textural forms. In the outer zones of inflammatory excitement, it is mere hypertrophy which is seen. But step by step towards the centre we can trace this hypertrophy gradually succumbing, in one of two forms, to the stronger influence of death ;—succumbing to it during transition, so that recognisable textural forms, overmultiplied and overgrown, are found in the act of degeneration and decay among other dissolving material ;—or succumbing to it, by way of abortion, in the sterile finality of pus. For though hitherto we have spoken of suppuration as a fact of inflammatory over-productiveness, yet here the truth must be added, that, in this over productiveness, nature is cheated of her intent ; since the subdividing germinal material, wherever its excitement is highest, becomes incapable of ripening into the texture."

Such is Mr. Simon's summary of the knowledge at present possessed, of the morphology of inflammation. He freely admits that had he directed attention chiefly to cell-membranes and cell-contents, he would have had to speak with much more hesitation, and to propose many debatable questions. He has therefore confined himself to that aspect of the case, in which the essential law is best expressed,—that "*the cell-forms of inflammation are derivatives of the cell-forms of health.*" He draws illustrations from

various textures; first, from the least vascular,—as cartilage cornea and tendon, which best of all illustrate the above views; and secondly, from epitheliated membranes—mucous, serous and synovial, with reference to which it is only of late that precise details have been furnished, "which enable us definitely to say that membranes suppurate, as cartilage or tendon suppurates, by profuse endogeny within the natural elements of texture."

The whole of Mr. Simon's argument is admirably summarised in a subsequent section of the treatise, and one paragraph of this summary may be here reproduced in conclusion of our notice of the *process* of inflammation.

"From simple autopathies of texture, inflammation is distinguished by its compoundness;—simple hypertrophy does not evolve profuse waste-products of degeneration; simple degeneration does not provoke an excessive textural productivity; it is the union of such opposites, which makes the diagram of inflammation."

The *symptoms* of inflammation are next treated of. And in respect of what is common to all inflammations, the celebrated formula of Celsus, taught by him some eighteen centuries ago, may be followed. In every examinable case the four classical symptoms, or signs equivalent to them, may be found;—*pain* as the measure of nerve-injury subsisting in the local process, or if not always pain, at least always *increased sensibility;* if not always *redness,* at least always *increased afflux of blood;* if not always *swelling,* at least always *increased textural productivity;* and always *increased heat* as the necessary concomitant of increased textural change. Our author shews that "something *complicative*" may be added to these by mere accident of position:—such as, pressure upon originally sound neighbouring organs; encroachment, by swelling, upon a canal; hæmorrhage, by ulceration of a large blood vessel; &c., and beyond this, further essential symptoms may be produced, primarily by *functional excitement,* subsequently by *functional inaction* of the organ inflamed. All these matters are most instructively treated of in the text, but we can only refer to the subject of *heat.* And here, we find that, in conjunction with Dr. Edmund Montgomery, Mr. Simon endeavoured, by a series of careful observations (fully described in a foot note) with a miniature thermo-electric battery, to answer the question:—"Is heat a symptom of inflammation only in external parts, and only as a passive result of their over-

fulness with blood? or is the inflamed part actively productive of heat?" The results of these experiments are:—

"That the arterial blood supplied to an inflamed limb is less warm than the focus of inflammation itself;

"that the venous blood returning from an inflamed limb, though less warm than the focus of inflammation, is warmer than the arterial blood supplied to the limb; and

"that the venous blood returning from an inflamed limb is warmer than the corresponding current on the opposite side of the body."

Ergo, an inflamed part is no mere passive recipient of heat, but is itself actively calorific.

A notice of "inflammatory fever" follows, and it is shown, by another series of observations, that increased temperature of the blood is an invariable fact in the febrile state, whether the febrility be continued, remittent or intermittent, and that chilliness—and even rigors, furnish no exception, but are signs of sudden rises of temperature. Upon the enquiry "whence comes this greater heat of the blood?" Mr. Simon does not hastily precipitate himself into the gulf of an hypothesis, but writes as follows:—

"Febrile excretions do, as a rule, undoubtedly attest an increased devitalisation of bodily material. It does not hence necessarily follow that febrile heat is the effect of this increased material change. Alternatives are conceivable—for the relations of heat and chemical activity to one another are relations of mutual causativeness or mutual convertibility: increased heat may cause an increase of chemical action, or increased chemical action may cause an increase of heat, or both heat and chemical action may together and simultaneously be increased under the influence of some third condition. And so far as our present subject is concerned, we are not logically justified in saying that febrile heat results from the increased chemical action which exists with it, unless we can at least show that non-calorific causes of chemical changes were those that first operated on the patient's body. To elucidate this question, intimately connected as it is with what is most obscure in the correlation of physical forces, lies beyond the scope of the present article, and, still more widely, beyond the writer's capacity and knowledge. Whether in reference to local inflammation or to general febrility, he can only venture to speak of the increased heat and the increased material changes as two phenomena concurrent with each other."

The *causes* of inflammation are well discussed. Under the head of *Contagion*, our author says that, in his opinion, there is ample reason to question the popular impression that only "specific" inflammations are communicable; that

on the contrary, it seems to be "a generic and essential property of inflammation, that its actions (or some of them) are always in their kind to some extent contagious." And with reference to Gonorrhœa, usually considered a specific disease, he says it may be asked

"Whether it be anything more than a common inflammation of the affected membrane;—an inflammation, which perhaps first originated, and may with infinite frequency re-originate, from local accidents of dirt and lust, and which, having thus orginated, shows a more communicable character than some other catarrhal inflammations—than common cold in the head, for instance, only because genitals come into inoculative contact more frequently than eyes and noses."

This must be our last extract from this excellent treatise; not because there is not abundant material, not because we think our readers must be wearied by the perusal of such extracts, but simply because we have but little more space at our command. Mr. Simon discourses wisely upon the Treatment of inflammation; we would especially recommend attention to the remarks upon the relief of pain, to those upon the administration of calomel, and to the cautions as to antiphlogistics. As the present writer has been a careful observer of Mr. Simon's practice, he knows that that gentleman is no niggard in the use of stimulants, but we here find him giving a warning against "misapplied alcoholisation of the sick." He fearlessly states that the cases in which life is saved, even during inflammation, by the judicious use of alcoholic stimulants, are infinitely more numerous than those where it is saved by bleeding: but these agents must not be prescribed as a thing of routine, but given or withheld, and (if given) always proportioned, according to the special requirements of the individual case. "For," he adds, "if treatment is to be indiscriminate, medical advice is but a sham. And there may be death in the practices of Van Dunk as well as under the prescriptions of Sangrado." In taking leave of Mr. Simon, we can only repeat that we are confident all who peruse his essay will derive high gratification; there can be no doubt that it is the very best upon the subject which has ever appeared in an English dress.

Such an introductory chapter to a work on Surgery gives a certain stamp of excellence to, and materially enhances the value of, the book. It is possible, nay it is the fact, that the essays which succeed suffer by comparison, notwithstand-

ing that some of them are excellent in themselves,—well arranged and well-written.

The second article is on "Abscess," and is contributed by Mr. Holmes Coote. We cannot commend the "method" of this essay; it seems to have been hastily, and is discursively, written. There are notices of some interesting cases, especially of two instances of retro-pharyngeal abscess which recently occurred in St. Bartholomew's hospital. Some practical hints are given, but upon the whole the "treatment" is meagre and inexplicit. M. Chassaignac's popular drainage tubes are condemned as worse than useless. The presence of a foreign body is dangerous, it must of necessity inconvenience and distress the patient. Mr. Coote has "tried the plan, and seen it tried in cases of empyema, when more harm than good ensued."

The third essay is by Mr. Paget; it is on "Sinus and Fistula," and occupies but eight pages. It is eminently practical, and like all Mr. Paget's writings, affords evidence of how carefully he considers a subject before he rushes into print.

Mr. Holmes Coote again appears before us as the author of the fourth article on "Gangrene." There is a good deal of useful information in the treatise, but upon the whole we are not satisfied with it. It is loosely written and ill-arranged. We decidedly object to "sloughing phagedæna, or hospital gangrene" being taken as the type of gangrene in general. It admits of grave doubt whether the so-called hospital gangrene is, in its beginning, of a true gangrenous nature. It is true that Mr. Coote's definition "a spreading, destructive process, attended by progressive loss of vitality in the living tissues," will certainly apply to hospital-gangrene; but it does not apply to the more ordinary forms of gangrene; it fails to include those better known, because more frequently met with, forms in which the process is neither spreading nor progressive. We think Mr. Simon far more happy than Mr. Coote, in his selection of carbuncle as a type of this disease. However as regards treatment, Mr. Coote's directions are full and judicious.

Mr. Paget contributes a very carefully written article on "Ulcers," as the fifth essay. The treatise is remarkable for minuteness of detail. Some of our readers may object to the numerous subdivisions which Mr. Paget makes, but all

must admit that his general classification is scientifically based. He says,

"The plan that will be here followed is that of describing, first, each of the chief varieties of ulcer, distinguished according to their constitutional or specific origin. The type with which to compare and contrast each of them is the simple ulcer, left at the separation of a slough, after injury, in a healthy person; and the type of each distinct form or variety must be in the characters which it presents in its most frequent appearance, or in which it is prone to continue when not disturbed, for either good or harm, by any external circumstance. In a second section will be a description of the subordinate or accidental varieties of appearance which may be found in, or connected with, any of the chief forms of ulcer (though not with equal frequency in all), according to external circumstances."

We extract the following description of a kind of ulcer which is by no means uncommon, although not generally mentioned as a distinct form in systematic works on Surgery.

"*Cold ulcers* should be distinguished because of the peculiarity of constitution on which they depend, and which often has to be considered in the treatment of other ulcers of various kinds. They are like small inflammatory ulcers, occurring spontaneously in the extremities, especially at the ends of the figures or toes, or at the roots of the nails. In some cases they are preceded by severe pain and small gangrenous spots. They are in many respects like ulcerated chilblains, but they occur without any exposure to intense cold, in patients whose hands and feet are commonly, or even habitually, but little warmer than the atmosphere they live in. Such patients are among those who say they are never warm; and the skin of their extremities, unless artificially heated, is to the touch like the surface of a cold blooded animal. The blood must flow in these parts so slowly, that there is time for it to be cooled nearly to the temperature of the atmosphere; probably it is often stagnant, or scarcely circulating. With this defect, which in its smaller degrees is very common, especially among women, the usual coincidents are a small feeble pulse, a dull or half-livid tint in the parts which in healthy people are ruddy, a weak digestion, constipated bowels and scanty menstruation. The cure of the ulcers, and prevention of their recurrence, lie in the remedy of these defects. Many tonic medicines may be useful, but the most so is iron, in whatever doses the patient can take it. With it purgatives are generally necessary, *e. g.* small doses of mercury and aloes, or sulphate of magnesia. Full diet, also, is usually required; exercise in the fresh air; very warm clothing, especially of the lower half of the body; and warm bathing. Dry applications, or lotions of sulphate of zinc or copper, are the best local means, and the part

must be kept warm ; healing is always tardy or quite arrested at a temperature far below the natural heat of the body."

In our experience these cold ulcers are frequently met with among the low-living sepoys on service in Burmah ; and we can testify to the efficacy of the treatment recommended by Mr. Paget. We have found the oxide of zinc, suspended in a moderately thick mucilage, a good local application.

There is, in this article, a very good note, by Mr. Busk, of *scorbutic ulcers.*

Mr. Campbell De Morgan furnishes a good essay on "Erysipelas." If any exception may be taken to it, it is probably with reference to "diffuse cellular inflammation," the account of which is, by no means, full or complete. The treatment of erysipelas is very well handled. Mr. De Morgan's experience of the sesquichloride of iron is, that it has a power which other tonics do not possess of arresting the course of the inflammation during all periods. In the records of failure it is evident that the medicine has not been fully tried. Less than a drachm and a half, or two drachms, per diem, will rarely affect adults. Our readers may contrast Mr. De Morgan's opinion of this remedy with that of the late Dr. Todd, who says, "I would as soon think of trusting to it, in the treatment of the third or fourth group of cases [those which would probably terminate fatally if left to themselves, and those in which the early stages have been favorably passed, but the secondary phenomena of suppuration have been induced], as I would to the billionth of a grain of aconite, or arnica, or sulphur, or any other homœopathic absurdity."* For ourselves, we are entirely with Mr. De Morgan.

The next essay is contributed by Mr. G. W. Callender. It is on "Pyæmia," and, with the exception of a want of perspicuity of language, and of clearly-marked definition in the first part of the essay, it is a good summary of the facts at present known with reference to this affection. The author says that two diseases are, by many writers, confused under the name of Pyæmia, or purulent infection. "One, the *primary* or direct consequence of a poison, in which fluid elements are, it is probable, chiefly concerned ; the other, a *secondary complication,* but in itself distinct and often independent." It is to the latter that the term "pyæmia"

* Clinical Lectures on Acute Diseases.

especially applies. Mr. Callender thinks great caution should be observed in forming a prognosis in both septi-poisoning, and the secondary complications. As regards the former, the previous habits and condition of each patient must be carefully considered; the slow development of the symptoms is a favorable sign. As regards the *true pyæmia*, "it is probable, a fatal result must generally be anticipated."

The subject of "Tetanus" has fallen to the lot, or choice, of Mr. Alfred Poland. His essay is a reproduction of a well-known paper of his, which will bear favourable comparison with many of the other treatises in this volume. It contains a considerable body of well arranged and well selected facts; it is comprehensive, but devoid of any redundancy of language.

Dr. Barclay contributes the ninth essay, which is on "Delirium Tremens." It occupies but thirteen pages, but in this space the writer has given a clear, if not elaborate, account of the disease. He impresses upon his readers the importance of attending first to the history of the case, and then to the character of the delirium, the existence of tremor along with the delirium, restlessness and want of sleep, and the generally depressed condition of the vital powers. The treatment which Dr. Barclay recommends is based upon sound principles. The *judicious* use of opium is landed, but,

"The great error of the present day seems to be regarding opium and stimulants almost in the light of specifics, while neglecting other important measures; it consists in the endeavour to 'cure' by heroic means, in place of resting satisfied with aiding in bringing about the 'recovery' of the patient."

Dr. Barclay thinks the patient may be advantageously brought under the influence of a narcotic by the hypodermic method, when his resistance prevents its being administered in the usual way. He does not refer to the administration of large doses of Tincture of Digitalis as recommended by the late Mr. Jones of Jersey. Our readers will remember that Mr. Jones was not led to the use of this remedy by any theory as to its action, but simply from its observed remarkably good effects when a large dose was accidentally swallowed by a patient suffering from this affection.

The essay on "Scrophula" is by Mr. W. S. Savory; it contains nothing new. The same gentleman furnishes the treatise on "Hysteria," which follows. This article also is

not remarkable for its originality, and it appears to us to be meagre in all its parts.

Mr. Henry Lee follows with an article on "Syphilis." We recommend its perusal to our readers, but we have no intention of following Mr. Lee through the intricacies of his subject. There is probably no surgical disease about which so much has been written as Syphilis, and one cannot but wonder that there are such diverse opinions concerning it, as are held even at the present day. Surely there should be something definite and incontrovertible with regard to an affection which is so commonly met with, and the symptoms of which are so thoroughly and entirely "objective."

The next essay is upon "Tumours," and is contributed, —we were about to say, *of course*, by Mr. Paget. The article is scarcely more than a reproduction of that section of his "Lectures upon Surgical Pathology," which treats of this subject, and may therefore be looked upon as classical. We almost regret that it was not entirely rewritten. The essay treats of *Innocent Tumours*, and yet it contains an account of a class of tumours, designated *Recurrent;* with respect to which we are told that "generally, the prognosis of recurrent tumours must be unfavourable, unless Dr. Esmarch's plan [large doses of iodide of potassium continued for several weeks] prove often curative."

Mr. C. H. Moore, of the Middlesex Hospital, supplies the essay upon "Cancer;" in which we have a very slight allusion to "Dr. Fell, of the United States." The article is readable, but beyond a few practical facts derived from the author's own experience, contains nothing new.

The following two essays, on "Contusions" and "Wounds," are by Mr. Paget; they are elaborate and exhaustive.

The subject of "Animal Poisons" is treated of by Mr. Poland, in a carefully written and well-arranged, but, by no means, original article.

Mr. C. H. Moore again appears before us as the author of the essay on "Wounds of Vessels." This is a comprehensive article, and includes hæmorrhage generally, the hæmorrhagic diathesis, transfusion, wounds of arteries and veins, entrance of air into veins, &c. We have been much gratified with this treatise; it is among the most practical, complete and readable in the volume.

"Collapse, and the general effects of shock upon the system," are most amply discoursed about by Mr. Savory. We apprehend that a large portion of the details of this article

must necessarily be introduced into those essays which treat of severe injuries, and that, therefore, it might have been advantageously curtailed.

The Editor appears before us in a very satisfactory light as the author of the antepenultimate, and the last, essay. The former on "Burns and Scalds, and injuries from lightning," and the latter on "Dislocations." Both of these are very good essays.

Mr. T. K. Hornidge contributes the remaining treatise, on the General Pathology and Treatment of Fractures. This article is one of the best, if not the second best, in the book. It is peculiarly rich in references, and bears the impress of very careful consideration. We hope to find Mr. Hornidge a contributor of other essays, especially in the more practical divisions of the work. It would be impossible to find in the space of any fourteen octavo pages a more full or excellent account of un-united fracture and its treatment than is here presented.

And reviewing the entire volume what shall we say concerning its general merit? That "treatises by various authors" should vary in style, and be unequal in power, comprehensiveness and literary ability could but be expected. Some of the articles would bear condensation without loss, whilst others would gain by amplification. But upon the whole we are satisfied that we have a good book and, so far as it relates to practice, a safe guide. There are no absolute glaring inaccuracies, no obtrusions of peculiar and debatable views; and if there are not many striking originalities, at all events, there are no lingerings after obsolete and exploded doctrines. We heartily wish success to both Editor and Publisher.

The Epidemics of the Middle Ages. From the German of J. F. C. HECKER, M.D., Professor at the Frederick Williams' University at Berlin, &c., &c. Translated by B. G. BABINGTON, M.D., F.R.S., &c. Third Edition, TRUBNER and Co., London, 1859, 8vo. pp. 360.

"THIS volume is one of the series published by the Sydenham Society, and, as such originally issued to its members only. The work having gone out of print, this new edition—the third—has been undertaken by the present proprietors of the copyright, with the view not only of meeting the numerous demands from the class to

which it was primarily addressed by its learned author, but also for extending its circulation to the general reader, to whom it had, heretofore, been all but inaccessible, owing to the peculiar mode of its publication, and to whom, it is believed, it will be very acceptable on account of the great and growing interest of its subject matter, and the elegant and successful treatment thereof. The volume is a verbatim reprint from the second edition; but its value has been enhanced by the addition of a paper on "Child Pilgrimages," never before translated,—and the present edition is therefore the first and only one in the English language, which contains all the contributions of Dr. Hecker to the History of Medicine."

Such is the publishers' introduction to the present edition of Dr. Hecker's works which are too well known and too highly appreciated to require any commendation at our hands.

We shall therefore simply give an extract from the "Child pilgrimages"—a new addition to the author's former works. The Essay is prefaced by the axiom—

"Mental emotions, as causes of nervous disorders, may be regarded from a purely physical point of view. They produce definite sensations, differing in nature and in force, whatever be the thoughts whence they have arisen, and whatever be the department of the mind to which they appertain." (p. 346.)

In explanation of the varieties of action arising from these varieties of thought, the author enters into a lengthened disquisition upon the connection between mental development—or perversion—and neural perfection—or pathology.

Into this subject which is one of unusual difficulty we are prevented entering: and we would refer the reader who has not yet perused the learned author's works to procure and study them carefully as giving us an insight, the clearest that is afforded by any work, into the accidents and circumstances which are calculated to excite the sympathy, engage the feelings or pervert the judgment of *the masses.*

In the body of the work the subjects of *the Black Death;* the *Dancing Mania,* and, *The Sweating Sickness,* are fully entered upon, and appended to each is a complete list of references establishing the authenticity of the statements contained in the text of the author.

These subjects would demand so lengthened a notice that we must pass them over now as they have been ranked among familiar themes since the first appearance of the present translation, issued by the (old) Sydenham Society in 1844.

Appended to the reprint of the original work is the article upon "Child Pilgrimages" the opening passage of which we have quoted above.

This part of the work has been translated by Mr. R. H. Cooke who has himself written upon the "Epidemic Mental Diseases of Children." Of the manner in which he has executed his task we can imperfectly judge, not having the original work to compare with the translation, but we must bear testimony to the elegance of the language employed, and the care with which the work is issued from the press.

We reproduce a lengthened quotation which may be accepted as a fair specimen of the style and nature of the whole volume.

The author says (pp. 348—350.)

"The child-pilgrimages of the Middle Ages have not as yet in modern times been sufficiently investigated. I might have appended them to my monograph of the Dancing Mania, but did not wish to overload that work, which, as it is, contains a great variety of matter. They have all a common cause, religious enthusiasm, and agree therefore in the main, however different their religious moving forces, and however unequal in respect to their extent.

The greatest phenomenon of this kind, to which, indeed history has nothing similar to present, was the Boy crusade of the year 1212. Of this event we have the accounts of eye-witnesses which are entirely worthy of confidence (for they are mostly State documents, but from which accurate pathological observation is confessedly not to be expected. At this time the Holy Land had been, as is known, long again reduced under the sway of the Saracens. Pain at this loss, and with it a longing for the regaining of the dearest possession of Christendom, was spreading with renewed sincerity and force among all the nations of the West. Modern historians have judged the idea of the Crusades from an intellectual stand-point, from such a point it must be confessed that it appears very worldly and trivial, but such a manner of regarding it is fundamentally false. On the small scale, as well as in the gross, it is just the nature of the emotions and passions to subdue and take full possession of the understanding and all the other mental agencies. The greatest convulsions of the world have been accomplished by mental excitements, the springs of which could not always stand at the tribunal of the understanding. These excitements were not on that account the less true and honorable. The only thing that is absolutely unworthy of human nature is that religious intoxication which spiritual ambition, itself destitute of religion, excites in the ignorant multitudes for its own purposes.

The idea, then, of the reconquest of the Holy Land took hold of men's minds at that time not less powerfully than, for instance, the mania of Martyrdom at the beginning of the 4th century, in which children in great numbers took their share. Whoever observes children attentively, sees readily that they in their own fashion decidedly sympathise with all the excitements of adults, and for this reason, that the strongest impulse in them is that of imitation. Religious and political passions without exception, even to the most petty excitements, acquire such mastery over them, as to manifest themselves in much greater strength, and apparently at the first view in much greater absurdity sometimes, in them than in their exemplars. The tenderness of their nervous systems occasions in them much stronger physical sensations and in this, as well as in the small strength of their will, lies the ground that nervous disorders are a more common result in them than in adults. The boundary line between the precursory state and the disease is here plainly and sharply drawn ; it is the suspension of the will, which Paracelsus has already very accurately and acutely alluded to in connexion with Chorea.

"In the year 1212 the minds of men were in that state that some outbreak of the overstrained feelings could not long be deferred. The first impulse was given by a shepherd-boy, Etienne, of the village of Cloies in Vendôme, of whom wonderful narratives spread through France with inconceivable rapidity. He held himself for an ambassador of the Lord, who had appeared to him in the guise of an unknown foreigner, received some bread from him, and given him a letter to the King. His sheep were said to have knelt before him to worship him, a miracle which perhaps was hardly required to invest him with the nimbus of sanctity. The shepherd-boys of the neighbourhood gathered about him, and soon there streamed together more than thirty thousand souls to partake of his revelations, and to be thrown into ecstasies by his discourses. In St. Deny's he performed miracles, he was the saint of the day, the messenger of God, before whom the people bent the knee, and when the king, concerned at this intoxication of a multitude that could not be disregarded, but not without having asked the opinion of the University of Paris, forbade the assemblies, no one regarding the temporal power. Every day there arose new eight or ten year old prophets, who preached, worked miracles, animated whole armies of children, and led them full of transport to the Holy Stephen. When any asked these children in pilgrims' coats whither they were going, they answered as from one mouth, "To God." Their orderly processions were headed by oriflams, many carried wax-candles, crosses, and censers, and they sang incessantly hymns of fervid devotion and two new melodies : the words, "Lord, raise up Christendom," and "Give us back the true Cross," were often repeated in them

It is to be regretted that the witnesses of a movement which snatched the whole child-world as if into a whirlpool, have not committed to writing either the songs or the melodies to which they were sung ; for it cannot be doubted that with them some of the fairest flowers of popular poetry have been lost, however overwrought and morbid may have been the excitement which gave occasion to them."

After alluding to the consternation of the parents and the devoted zeal of the children, the number of whom rapidly increased, we find the conclusion of the matter, as to the numbers concerned thus briefly stated.

"The movement did not last long, before there was assembled at Vendôme an innumerable army of boys, armed and unarmed, many on horseback, the most on foot, and among them not a few girls in male clothing. Their number is estimated at more than thirty thousand."

Tracing the further fortunes, (or *misfortunes,* to be more accurate) of the youthful bands of enthusiasts, and following out in details the account of the Second Children's Pilgrimage in 1237 ; the author thus concludes this interesting topic.

"Still much more obscure is a child-pilgrimage of 1458, of which the motives were quite clearly religious. It is probably, at present, almost impossible to trace the chain of ideas which occasioned it ; it is enough that it was in honour of the Archangel Michael. More than 100 children from Hall, in Suabia, set out, against the will of their parents, for Mont St. Michael in Normandy. They could not by any means be restrained, and if force was employed, they fell severely ill, and some even died. The mayor, unable to prevent the journey, kindly furnished them a guide for the long journey, and an ass to carry their luggage. They are said to have actually reached the then world-renowned Abbey, now, as is well known, a State prison, and to have performed their devotions there. We have absolutely no other information of them, and it appears that this child-pilgrimage, which falls to the time when chorea was very frequent and widely spread in Germany, has excited even much less attention than the migration of the children of Erfurt in the year 1237.

Adopting the plan before alluded to the author follows this by an Appendix containing ample authentic information, which proves and verifies the accuracy of his statements.

We feel that those who are interested in the investigation of the mental phenomena of Epidemics cannot fail to derive from this volume a fund of interesting information, and we feel also that we are much indebted to the enterprise

of the publishers who have placed within the reach of all readers a valuable and scarce work, which by its former mode of publication, was almost entirely restricted to the members of a (now deceased) Society.

1.—*A Year Book of Medicine, Surgery, and their Allied Sciences, for* 1859. Edited by Dr. Harley, Dr. Handfield Jones, Mr. Hulke, Dr. Graily Hewitt and Dr. Odling. London, 1860, 8vo. pp. 536.

2.—*The New Sydenham Society's Year Book of Medicine, Surgery, and the Allied Sciences, for* 1860. Edited by Dr. G. Harley, Dr. Handfield Jones, Mr. Hulke, Dr. Graily Hewitt and Dr. Sanderson. London, 1861, 8vo. pp. 578.

3.—*The Retrospect of Medicine, being a Half Yearly Journal, containing a retrospective view of every discovery and practical improvement in the Medical Sciences.* Edited by W. Braithwaite, M.D., &c. and John Braithwaite, M.D. Simpkin Marshall and Co.: London, post 8vo.
Vol. 43, January to June 1861. pp. 432.
Vol. 44, July to December 1861. pp. 432.

4.—*The Half Yearly Abstract of the Medical Sciences, being a Practical and Analytical Digest of the Contents of the principal British and Continental Medical Works published in the preceding six months; together with a series of Critical Reports on the progress of Medicine and the Collateral Sciences during the same period.* Edited by W. H. Ranking, M.D., Cantab, F.R.C.P.L., &c. &c. and C. B. Radcliffe, M.D., London, F.R.C.P.L., &c. &c. J. Churchill: London, post 8vo.
Vol. 33, January to June 1861, pp. 360.
Vol. 34, July to December 1861, pp. 371.

The conclusion of the year is productive usually of certain domestic discomforts in the way of Christmas bills which compel us to look back to the events and fortunes of the expiring year: and to all of us it presents many occasions for regret, at opportunities not fully availed of, and some-

times of pleasure, at the consciousness of some success in our various walks of life.

The professional position we occupy is, we believe, one especially calculated to awaken deep and serious reflection not only upon religious and personal matters, but also, and not less, upon the progress of Medical Science and our acquaintance with it. And as in personal so in medical affairs we must all of us try and sum up to ourselves the results of another twelve months, perhaps the last cycle of time that we are destined to complete.

But hopeful for better fortune, and expectant of a lengthened career of usefulness, our minds naturally tend to the consideration of the past rather as a guide to the future than as merely a record of what has been. Actuated by such feelings, it was not unusual in bye gone days to find Physicians and Surgeons selecting certain specialities and recording in verbose works, or in private memoranda compiled from day to day, the progress they themselves had made, and commenting upon the discoveries, or mistakes, of other practitioners.

Until a period well within our own recollection this system was perpetuated, and might still have continued had not the evident want of a full and comprehensive Retrospect, suitable for all the Profession, formed itself upon the attention of Dr. Braithwaite of Leeds who in 1840 sent from the Press a slender volume of 204, pages prefaced by a modest introduction, in which he promised to repeat his welcome gift half yearly if "sufficiently encouraged by the profession."

So successful was this project that some five years later Ranking's Abstract appeared, and both these periodicals appear to be acquiring stoutness of figure, and method of arrangement as to contents, equally indicative of success and merit to deserve it.

Later, in the course of 1860, appeared a portly volume under the charge of the Editors selected by the New Sydenham Society. Wearing the well known uniform of this Society we gladly welcomed its appearance. For reasons upon which we shall enter hereafter, we found that our expectations were not quite fulfilled.

A second volume of the same nature has now appeared, and we are glad to find in it a marked improvement, in many respects upon its predecessor.

As these publications emanate from a private Society, the

sale of them is necessarily restricted to a comparatively small number of persons; and we are rather disposed to question the wisdom of publishing an Annual Volume which much resembles those of Braithwaite and Ranking, and which must to a certain degree interfere with their success. Besides an *Annual* Volume is perhaps too great an undertaking, and must be later in issue (if it be completed up to date) than a half yearly one: and this is in itself a decided objection. We ourselves received in London in August 1861 our Year Book for 1860, that is 7 months after date. We received, *in Madras*, in February 1862, our Retrospect and Abstract up to 31st December 1861.

But passing by these facts and admitting that a New Sydenham Society's Year Book is a desideratum, it is well for our readers to be acquainted with the system upon which it is conducted, and how far this system is a good one.

In the Volume for 1859 the preface informs us that,

"The volume is divided into five departments, each of which has been entrusted to a separate editor. The first department, entitled the "Institutes of Medicine," includes reports on Anatomy, Physiology, Histology, and Animal Chemistry, and is, in fact, an epitome of science applied to practical medicine.

"The second department contains the reports on Pathology, Therapeutics, Clinical Medicine, and Psychiatry.

"In the third department are the reports on General, Aural, Ophthalmic, and Dental Surgery.

"The fourth department is devoted to Midwifery and Diseases of Women and Children.

"Whilst the fifth and last department includes Legal Medicine and Sanitary Science."

In this volume criticism of any kind was avoided, and the several articles and notices of books or papers were merely brought into juxta position.

The general result of this plan was found not to be very successful: the faults however being more those of execution than of design. The various Editors conducted their labours somewhat in the following manner. They prefixed to each section of the various subjects a brief statement as to the book or article referred to (in nearly the same manner as reviewers do); and following this appeared a brief resume of the leading points of interest contained in all of them.

This (sometimes done without reference to pages) could not fail to be unsatisfactory: and the further tendency of the Editors to summarize, instead of selecting for quotation

the author's conclusions or argument, reduced the Year Book to the position of a classified Annual Index to professional literature.

The Volume for 1860 was a considerable improvement on that for the preceding year, and in a brief preface, directing attention to the fact that from the smaller type used the volume really contained a great increase of matter, it is further stated,

"The volume differs still further in the arrangement of the material. The abstracts, where abstracts are given, follow immediately the title or titles of the papers or treatises to which they refer.

"It has been thought better not to attempt any alphabetical arrangements of the titles, but to group together those papers which refer to cognate subjects. By this method the reader's convenience will probably be better served than by any other more arbitrary plan of classification. By reference to the Index the reader will always be able to discover any author's name, or the title of any paper, for which he may be in search."

In both these respects we think the Editors have judged wisely.

But there is one fault which we find in very many parts of the book. We allude to making lengthened quotations upon comparatively unimportant, and undoubtedly trite subjects and merely supplying brief summaries of original contributions of greater novelty and more absorbing interest.

We would in conclusion state the facts of the case as regards this Year Book. It offers to the members of the New Sydenham Society a remarkably cheap, and very voluminous Index to various writings of a professional character produced, or brought to the Editors' notice, during 12 months. But it does so in a manner calculated to be of little use except to persons having access to large and new Libraries. To the practitioner it is of far less utility than the "Retrospect" or "Abstract." Its notices of books are sometimes confined to a mere record of their names, and the abstract afforded by the Editors are not, in our opinion, judiciously chosen.

To readers in this country the book is in many respects valueless, to those at home and in large cities, it must be of great use.

But we cannot help thinking that the interest of the members of the New Sydenham would have been more promoted by an additional monograph, or a valuable collection of essays from foreign authors, than by the Year Book.

We offer this suggestion, and we are not alone in this opinion, with every respect for the ability of the Editors who must have gone through an enormous mass of material to acquire the means of giving us this classified Index to the literature of two years of Medical Science.

The contents of Dr. Braithwaite's Retrospect are admirably arranged both for reference and as regards the collation of the several points of information upon which extracts or analytical notices are given. Each volume opens with a Synopsis containing a short abstract of the most practical articles in the book, showing at a glance the most important indications of treatment published by different writers during the period embraced under the title of the volume. This is a most valuable epitome of recent discovery, or suggestion, in the treatment of disease. In order further to assist the reader interested in any subject thus brought under his notice, there is in the Synopsis a reference given to the page of the volume in which a more lengthened notice of the subject may be found. The Synopsis is arranged on the same principle as the body of the work, and there are an uniformity of design and method of arrangement through the whole work that are deserving of much commendation. Its several sections embrace, Affections of the system generally ; Diseases of the Nervous System ; of the Organs of Circulation ; of those of Respiration ; of Digestion ; and of the Urinary System ; these being the various sub-divisions of practical *Medicine.* There is also prefixed to this part of the book a commentary on Midwifery and Diseases of Women and Children. This latter part is a novelty introduced into Vol. 43 and continued in Vol. 44. It is admirably executed, carefully written, and is in the form of a commentary or summary of practice for the previous six months.

Practical *Surgery* includes articles grouped under the following heads—Affections of Bones and Joints ; Organs of Circulation ; Alimentary Canal; Organs of Urine and Generation ; Diseases of Skin ; and of Eye and Ear.

The only possible objection to this subdivision would appear to be the grouping of Diseases of the Skin under Surgical affections : we would have preferred to see them either subdivided into those remediable by external treatment (Surgical) and those by constitutional treatment (Medical) ; or placed as a class of affections per se, as is done with Midwifery and Diseases of Women and Children.

The latter topics form in the Retrospect, the subject of another section of the work, and this is followed by one on special subjects not easily arranged under any of the foregoing heads.

A brief notice of new books concludes Volume 43, but is not repeated in Volume 44.

Of the work as one of reference we can speak most highly. It has however especial claims from its giving the substance of practical suggestions in short paragraphs, chiefly quoted from the author's own words; and it will afford to those whose supply of new books is limited, a very good digest of the progress of Medical Science—a digest at once comprehensive, and portable, and cheap.

To authors anxious to find what books have been written, or articles contributed, on any given subject for the past 21 years, it offers a fund of information. We think that Medical officers liable to constant marching would find it, with a few of the standard works of reference, a great and generally sufficient guide to the successful practice of their profession.

On this point we may add that we observed with pleasure in our Home journals lately an announcement of which we give a copy *(without charging as an advertisement)* for the information of up country Medical officers, and we shall be glad to hear that some of them avail themselves of these opportunities.

"New Subscribers may have their Volumes marked, July—December, 1861, without the Volume 44, so that each Volume will be perfect and independent of the long series."

N. B.—A limited number of Sets, Volumes 1 to 40, may be had for £5."

We have ourselves had occasion to refer constantly to this now lengthened series, and have found it of material assistance to us.

The Abstract of the Medical Sciences is in design strictly identical with the great body of Dr. Braithwaite's Retrospect. We have here, however, a much more elaborate system of classification of articles and a series of very valuable reports on different departments of Medical Science are appended.

Thus in Volume 33 these reports are upon Materia Medica and Therapeutics, and on Physiology: and Practical Medicine

and Surgery are discussed in Volume 34. The object of these is thus explained.

"The intention of the following Reports is to pass in review the principal additions to each department of Medical Science which have been placed on record during the preceding six months. It is not contemplated that they should be confined exclusively to the notice of what is new; any fact or doctrine which may be considered practically useful will, although not strictly novel, be regarded as worthy of commemoration. It must be obvious to all who are aware of the immense mass of information which is almost daily put forth by the medical press of this and other countries, that the notice of every subject would be an impossibility. It therefore devolves upon the writers of each report to select only such articles for retrospection as may possess superior recommendations, either of an intrinsic character, or in relation to the main end and aim of all medical knowledge—the alleviation of suffering and disease.

To those who have not the Volumes to refer to we may add that these reports are simply extracts from writings on these special subjects, and that they are arranged with great care.

We are glad to find that in the publication we are now alluding to, some of the contributions which have appeared in this Journal are favourably alluded to: and the articles on the Treatment of Dysentery by large doses of ipecacuanha, contributed by Officers of the Madras Army and admirably arranged by Mr. Cornish, and the contributions of Mr. Day on Elephantiasis are given at considerable length. The original articles by Mr. Waring, Dr. Smith, Dr. Macpherson, Inspector General of Hospitals, and others, are referred to and quoted.

We are not without hope that the knowledge of this fact will induce some of our present readers to become contributors, to our pages, and that this, the only real difficulty with which we have to contend—namely, the limited number of original articles placed at our disposal—may be soon overcome.

We would in conclusion strongly recommend the regular reading of the "Retrospect" or the "Abstract" to all our readers and professional brethren. It makes little matter, to our mind, *which* they select, for they are both admirable. But, we strongly advise that one or other should be possessed by every Medical man in India (not even excepting the few at the Presidencies who *can* obtain new books, though not as easily as in England.) They will learn from them how

Medical Science is advancing at home, and they can thus ensure to themselves and their patients the advantage of being able to benefit by all recent discoveries in all parts of the world.

The cost of the Abstract is 3 Rupees 4 Annas, and of the Retrospect the same, half yearly. Any London Publisher would be happy to make arrangements to furnish these volumes on publication. On this subject we will in our next No. give fuller information regarding cost of carriage, &c., so that our professional friends may learn how to get out books to Madras quickly and cheaply.

On Surgical Diseases of Women. By I. BAKER BROWN, F. R. C. S. (By Exam.) Senior Surgeon to the London Surgical Home for Diseases of Women, &c., &c. 2nd Edition, revised and enlarged. London: JOHN W. DAVIES, 1861, 8vo. pp. 410.

THE name of Mr. Baker Brown is too well known to allow us to feel any doubt as to the value of this work, and we gladly welcome it remembering the marked ability which characterized the first edition of it.

Mr. Brown in alluding to the, hoped for, superiority of the present Volume, says, after a suitable introduction.

"To show more clearly the improvements and additions in this present edition, I will enter into a few particulars. New Chapters or Sections have been added on Intra-uterine Fibrous Tumours, on Hypertrophy and Irritation of the Clitoris, on Cauliflower Excrescence of the Uterus, on Certain Diseases of the Rectum Producing or Simulating Uterine Disorder, and on Surgical Lesions connected with Sterility in the Female. The Chapter on Ruptured Perinæum has been thoroughly revised, and the operation for its cure illustrated by eighty-one in place of eighteen cases. To the account of Vesico-vaginal and Recto-vaginal Fistula much has been added; these sad, and, of old, most intractable lesions being now readily amenable to treatment by a Surgical operation which has reached a high degree of perfection and precision. In the last edition my experience with the operation for Vesico-vaginal Fistula had been limited to four, but I am now able to record the history of forty-two cases which have fallen under my own care. (Preface, pp. 9—10.)"

Nor are the additions confined to those topics; but, as regards tumours of the uterus and operations on it, and the

external sexual organs, new matter is abundantly introduced. Without, however, too far anticipating the contents of the volume, we may express pleasure at having before us a complete and systematic treatise on all, or nearly all, the surgical affections peculiar to women.

We hold that there is in them sufficient peculiarity to justify a separate work: and we are glad to find the subjects handled by one so competent, to treat of them, as Mr. Baker Brown undoubtedly is. As the first edition appeared long before our present position was undertaken, we need not institute further comparisons between this and his former work on the same subject (1854), but proceed at once to place before our readers an analysis of such points as appear either of novelty or importance.

In some respects the class of affections under notice may be said to have advanced, perhaps, more than any other of late years. Some of them, formerly almost hopeless, are now remedied with comparative facility, and cases of success in this department, (we allude to Vesico-vaginal Fistula) have ceased to be the exception as they formerly really were. Of this lesion we may safely say that those suffering under it had perhaps more *actual misery* and *discomfort* than any other class of patients, and that their malady was not productive of greater annoyance to themselves than to those around them. These things are happily all changed now.

We purpose entering upon, in greater or less detail, the various subjects considered, and in doing so shall observe the same order as that indicated by the author. He commences his classification by the natural division into two sections; the first of which includes those maladies which mostly result from parturition, directly or indirectly; and the second embraces those which occur independently of pregnancy.

And here we are reminded that the designation of this work is scarcely strictly accurate—or that the contents of it—to speak more correctly—do not fully come up to its comprehensive title. If by the words "Surgical Diseases of Women" our author means "all Surgical Diseases," there is an evident omission; for erysipelas, abscess of the breast and the presence of syphilis in pregnant women, are all omitted from consideration.

Of this and other omissions to which we will hereafter allude, the cause undoubtedly is that Mr. Baker Brown's object is really to treat of Operative Surgery as applicable to the relief of *some* affections peculiar to women.

He admits this himself, for at page 257 he says,

"As said before it is not my present business to consider the action and removal of all these causes (of sterility), but to notice those only associated with such Surgical lesions as are remediable by operation, and to indicate what that operation is."

Indeed so far does the author restrict the scope of his observations that the great topic of his book is Operative Surgery as employed to the Uterus, Vagina, Ovaries, and the associated organs, the Vagina, Bladder, and Rectum. But within these limits a wide field of enquiry and research is laid open for our investigation, and in surveying it we will follow the order of subjects indicated.

This arrangement we have before specified, and according to it we find that under the first section are classed:—1. Rupture of the Perinæum. 2. Vesico-vaginal Fistula. 3. Recto-vaginal Fistula. 4. Laceration of the Vagina.

Under the second section we find:—1. Prolapse of the Uterus. 2. Prolapse of the Vagina: Cystocele and Rectocele. 3. Tumours of the Uterus: Fibrous and other varieties. 4. Other Surgical Lesions of Uterus. 5. Stone in the Female Bladder. 6. Lesions of External Sexual Organs: including Imperforate Hymen; Encysted Tumours of Labia; Hypertrophy of Clitoris; Vascular Tumour in the Meatus Urinarius. 7. Diseases of the Rectum resulting from certain conditions of the Uterus. 8. Certain Diseases of the Rectum simulating Uterine Disorders. 9. Certain Surgical Lesions connected with Sterility in the Female. 10. Ovarian Tumours: this last being one of the most important in the book.

The subject of Laceration of the Perinæum is ably considered in a chapter 68 pages long, and illustrated by two plates; the first of which shows the surface recommended to be denuded; the insertion of the quill sutures before apposition of the parts and the division of the sphincter on each side of the coccyx: the second indicates the position of the parts after operation.

Upon many of the considerations which of necessity form a part of the complete consideration of this subject, there are some upon which we need not dwell at any length: the conclusions arrived at by the author being merely confirmative of our own knowledge and of the writings of all who treat of Obstetric Surgery. Thus: that slight laceration simply consisting of a rupture, varying from a mere solution of continuity to a slit an inch or so in length, and merely

involving the perinæum, is of common occurrence in primiparæ, is so well known, that it is stated by some authorities that the number of cases of first labour where it does *not* occur, is small. But, the severer forms, and those likely to come to notice, are generally of a much more serious character. Indeed, were they not so, they would probably be overlooked. For; when of the slight description indicated above, they almost disappear after labour, and they require no special treatment beyond cleanliness and position.

Mr. Baker Brown's remarks, therefore, both as to the frequency and treatment of the varieties of this lesion may be held as chiefly applying to the more severe forms of it. And here we cannot help observing with surprise a fact prominently brought to notice by the author, viz.,—that for many years English writers generally seemed to incline to the idea that the variable, and frequently unsuccessful, result of the operations devised for the cure of this accident, should induce us to be contented with simply "aiding the efforts of nature in narrowing the wound, and in lessening the evils attendant on it." More modern authorities, however, of whose observations the author gives a clear, though concise, resume, have advocated direct operative interference.

The *causation* of rupture of the perinæum, may be referred to the mother or the child—and again there are circumstances which predispose to, or excite, this accident. To the latter belong the improper use of instruments, undue manual violence by the attendant, clumsy assistance to the passage of the shoulders, or head of the child, and excessive uterine action. Unusual position (as where delivery is effected in the erect posture,) sometimes appears to eventuate in this occurrence.

Actual disproportion between the head and the calibre of the passage through which it is forced, and a rigid, or a friable, condition of the soft parts, may equally be productive of the same result. Again, the propulsive effort of the uterus may drive the head of the child against the perinæum and not in the direction of the vulva: prolonged extension of this part in slow labours, and the youth or age of the patients (if primiparæ) may also influence the liability of injury.

But, probably, instrumental mismanagement is the most fruitful source of mischief, and, as quoted below, Mr. Baker Brown's tables show the frequency of this cause.

And here we may remark that the immediate and the re-

mote effects of undue instrumental pressure are to be estimated by very different means. We find that even to the present day this is regarded as the chief source of vesico vaginal fistula—although the experience of every one enables them to recall cases *where no instruments had been used*, in which the lesion was apparently identical, in position, extent, and character, with that known to result from this cause. It is, indeed, more than doubtful that even the majority, or a large proportion of cases of this kind, do really spring from this cause. We would indeed rather lean to the opinion that undue, excessive, or prolonged pressure of the head, was at once the cause of the fistula, and also of the use of instruments, being the result of that class of difficult labours in which instrumental aid is required. To this point we shall again recur.

The case is, however, widely different as regards the *immediately apparent* results of ill applied instruments or those whose action is altered by fortuitous circumstances. We believe that these latter are not sufficiently considered as really the cause of the accident, and that blame is often improperly imputed to the attendant. On this point a word of warning is spoken in the following passage, which it would be well to bear in mind, not only in guiding our own conduct, but also in judging that of others.

"In thirty-one of the eighty-one cases of rupture detailed in this chapter, instruments are recorded as having been employed to facilitate delivery, and as having more or less directly caused the injury. In two or three, indeed, the sudden onset of violent uterine contractions after the application of the instrument, is stated to have been the more immediate cause of the accident, by the rapid propulsion of the child, together with the instrument, through the external parts. The vectis was the instrument employed in one instance, in all the others, except two, in which the instrument is mentioned, the forceps. In one of these two exceptional cases, craniotomy was resorted to ; and in the other, according to the patient's statement, a boot-hook was used, undoubtedly in the absence of proper instruments.

In all probability, instrumental means of delivery were employed in some other of the examples of ruptured perinæum recorded, but were overlooked in collecting their history, or lost sight of by the patients in narrating it.

In six women the cause was rapid delivery before aid could be obtained ; and in two or three others it is noted that it was the sudden onset of violent uterine contractions after tedious labour that did the mischief."

Among the other productive causes of this accident we may consider Ergot of Rye: but here the effect of the drug is only the artificial production of muscular action, and this should be watched for and its ill effects prevented, or controlled as if it occurred spontaneously.

The question as to supporting the perinæum is briefly noticed by the author: though not as fully as could be desired. Having alluded to the production, by it, of reflex action of the uterus (thus causing pressure of the head on the perinæum) he draws the following conclusion. "Yet it is equally true that, when the head is pressing downward and backward—*i. e.* on the rectum and perinæum—the hand should be steadily applied, so as to guide the head forward under the arch of the pubes through the external parts."

We may contrast with the foregoing the contemporaneous opinion of Dr. Graily Hewitt, who considers that the only effect of "supporting" is retardation of the advance of the head; and, that, unless by the exercise of a considerable degree of force, this effect would not follow. He further argues, that if this be secured, the mechanism of the natural process—by which dilatation is brought about—is interfered with.

Without entering at length upon this subject, we may accord our assent to Dr. Hewitt's opinion, that unusual rapidity of labour is one of the principal causes of laceration.

Mr. Brown, however, as we have seen, considers that under the circumstances specified by him, the process of "supporting" is advantageous.

In addition to maldirection of the head, he enumerates other sources of injury, and among these the one so familiar to all practitioners, namely, *rigidity of the perinæum.*

In the treatment of this complication he strongly recommends chloroform, saying (pp. 6—7).

"Where rigidity of the perinæum opposes the advance of the child, various remedies have been proposed to overcome it, as blood letting, tartar-emetic, warm fomentations, and greasy substances; but since the introduction of chloroform into practice I have never resorted to any of them; because I have found that in ten minutes, in the very worst cases, the parts have become dilatable when that agent is administered by inhalation."

On this point we cannot go to the length the author does—and indeed he admits, a few lines lower down, the possibility of its failure. If *this* occurs the oblique perinæal incision of Dr. Blundell meets with Mr. Brown's approval.

As to the time when "supporting" is most required, he says,

"M. Chailly-Honore places particular stress on duly supporting the perinæum during the delivery of the shoulders; stating as his belief, that most lacerations occur at that time from the neglect of such support. In two of the cases hereafter recorded, the exit of the shoulders caused the rent; and so again it was the rough attempt to deliver the shoulders which, in M. Verhaeghe's third case, did the mischief. This reference to experience does not, indeed, confirm Chailly-Honore's opinion, but it demonstrates the importance of giving due assistance at this stage of delivery, by shewing that laceration is then a not unusual result. It is again an obvious rule to induce women to moderate their efforts at expulsion during the passage of the head of the child."

Of the propriety of this rule there can be no doubt.

In the succeeding pages the extent of rupture of the perinæum is considered, and we may adopt Mr. Brown's classification of four *varieties:* The first of these is the one we before alluded to as being so slight as to require no special treatment—the second is that, otherwise and much more correctly, designated *perforation*—the third where the entire length of the perinæum is torn, but the sphincter ani remains intact—and the last, where this muscle and even the recto-vaginal septum is torn through.

The distressing effects of the *third* and *fourth* of the above need not be dwelt upon, but we may at once proceed, to the indications for operation in such cases, and to Mr. Brown's own mode.

It becomes necessary for us to pass over with only cursory notice his history of this subject in which he quotes all the best authorities on the subject, and contrasts their opinions *inter se* and with his own.

In p. 30 *et seq:* he recommends the lithotomy position: and, after some preliminary instructions (including a strong recommendation of chloroform as an anesthetic and as causing relaxation) he thus describes his operation.

"The sides of fissure being held by an assistant so as to insure sufficient tension for the operator, a clean incision is made about half an inch external to the edges of the fissure, and equal to it in length, and sufficiently deep to reflect inwards the mucous membrane, and to completely bare the surface as far as another incision carried along the inner margin (See Plate I). The denudation of the opposite side of the fissure is then to be practised in a similar

manner, and the mucous membrane from any intermediate portion of the recto-vaginal septum to be also pared away.

This denudation must be perfect, for the slightest remnant of mucous membrane will most certainly establish a fistulous opening when the rest of the surfaces has united.

Some operators, especially the continental, remove the mucous membrane by scissors ; but this is a clumsy and unsafe method, and the knife will be found to effect the purpose quicker and better.

Division of the Sphincter.—So soon as this stage of the operation is completed, the sphincter ani is divided on both sides about a quarter of an inch in front of its attachment to the os coccygis by an incision carried outwards and backwards. The incision should be made by a blunt-pointed straight bistoury, which having been introduced within the margin of the anus, guided by the forefinger of the left hand, is quickly and firmly carried through the skin and subcutaneous areolar tissue to the extent of an inch, or even two, external to the anal orifice, through some of the fibres of the muscle which immediately surround the anal aperture, but leaving those more deeply seated within it untouched.

Insertion of the Quill Sutures.—The sphincter having been divided, the thighs in the next place are to be approximated, and the quill sutures introduced. The left denuded surface and the tissues external to it being firmly grasped between the forefinger and thumb of the left hand, a strong needle carrying a double thread is plunged, with the right hand through the skin and subjacent tissue an inch external to the pared surface, and thrust downwards and inwards beneath it until its point reappears on the edge of that surface ; it is then introduced at the corresponding margin of the denuded space of the opposite side, and made to traverse beneath it in a direction upwards and outwards until it escapes at a point equidistant from the external margin with that at which it entered on the left side. Each suture is to be introduced in the same way, the one nearest the rectum first : two often suffice, but three are at times required.

The sutures are double, to allow them to enclose the quills, or (as actually used) the pieces of elastic catheter or bougie, around which they loop on one side, and are tied over by their free ends on the other. For the quill sutures I prefer stout twine, well waxed, to silk, as I believe it to be less irritating, and productive of less suppuration.

Insertion of Interrupted Sutures.—The quill sutures being firmly secured, the sides of the fissure become approximated,—the denuded surfaces in apposition. To bring together the outer margins, along the line of the skin, it is advisable to pass three or four interrupted sutures, and these answer best when metallic of iron or silver wire, or copper silvered. If this be carefully done, union of the skin will speedily take place, and that of the deeper parts be materially facilitated. (See Plate 2.) As an accessory or

superficial suture, the twisted form is used on the Continent, but I think the interrupted more simple and have found it answer completely.

Upon the success attendant upon this operation we need not enlarge. It is now both well known and highly appreciated. We in our Second Volume recorded a case treated by Mr. Lowe in this manner with success.

In the following part of this Essay the Author considers the after treatment to be adopted, and very properly insists, on the necessity of avoiding any accidental irritation of the raw surface from urine, &c., and the importance of perfect quiet: his rules as to diet are highly judicious.

The question as to the best *time* for attempting a cure in these cases is fully considered, and a conclusion drawn favourable to the immediate operation. Mr. Brown satisfactorily disproves the asserted rigidity resulting from operation, and he adds that in *fifteen* cases subsequent delivery was not attended, with any injury in *eleven* instances: and in the remaining *four* "the laceration was in no wise a consequence of the cicatrization of the restored parts." A careful examination of these cases not only confirms this statement but proves that the line of cicatrix was able to bear a distending force which lacerated the perinæum in another direction. The result of Mr. Baker Brown's practice is worthy of record. Of 81 cases 75 were successful. Three fatal cases occurred from pyæmia: and the operation failed in three instances, but in two of these great improvement took place, and complete cure can be easily accomplished.

The 81 cases are given in sufficient fulness to enable us to estimate the probable sources of difficulty to be experienced both in operation and after treatment, and the whole Chapter affords us a fund of useful and practical information.

Prolapse of the Vagina, Vaginal Cystocele and Rectocele, are next considered. But we pass over these and other topics of interest, being desirous to direct especial attention to the subject of Vesico vaginal Fistula with the operative treatment of which our author is so honourably associated. We must here premise that all the history of this operation has afforded but too many points for personal and angry discussion, for rival claims as inventors of it, and for endless modifications of the apparatus used.

In Ranking's Retrospect for 1852 *(Vol. 15)* is to be

found the account of the operation proposed by our valued friend Mr. Marion Sims, (whose name Mr. Brown mis-spells, and whose sex he alters by designating him *Marian*) who writing from New York detailed an operation to the discovery of which he fully establishes his claim. This report was subsequently extended in Dr. Sims's Essay on *Silver Sutures on Surgery*, an Essay replete with interest, and which was read as the Anniversary Oration before the New York Academy of Medicine on 18th November 1857. This Essay is now before us, and we notice it because we think it fully establishes the priority of invention claimed by Dr. Sims.

The subsequent improvements by Dr. Bozeman of Montgomery, Alabama, U. S.—and by Professor Simpson of Edinburgh, and Mr. Baker Brown, are fully detailed in the pages before us. To any one intending to operate they are invaluable, for not only do they give a full and interesting history of the operation, but they are fully illustrated with beautifully executed designs of the several instruments and appliances used in operating.

These, it is of course impossible, to reproduce in our pages, and indeed it would not be fair to the author to do so. But we may with perfect justice to him reprint his account of his operation, for it is so clearly written and so fully given, that it will convey to the mind of the reader all that is essential as to the principles to be regarded in its performance.

And here we have to express our regret that Mr. Baker Brown has thought it advisable to discuss certain questions regarding priority of invention, &c., which had been previously settled or which were of little import to the reader. Indeed so anxious on this point is the author, that we are favoured with a rechauffé of a good many old discussions, and furnished with a good many explanations about them.

Mr. Brown has been pretty frequently accused of adopting the discoveries of others and reproducing them again to society as his own legitimate offspring. Wisdom is imputed generally to the child who knows his own father; but the wisdom of Solomon would not enable certain *Specula Clamps—Shields, Needles* and *Knives*, used in this operation to declare who designed them first. Of this we have little doubt, namely, that every inventor *believed* himself to be the real discoverer, and it is equally probable that he will continue to do so—all argument notwithstanding.

On these most points we cannot dwell, but pass at once to

Mr. Brown's operation with the simple remark that he would do well, before offering so many explanations, to remember

Qui s'excuse s'accuse.

In the following account of the operation the authors gives us a full detail of the plan he himself adopts with remarkable and cheering success. Having recently seen it conducted by an experienced surgeon, we must testify to its complete and gratifying success.

We quote at length (pp. 133—135).

MODE OF OPERATING.

Having made ready all the arrangements for proceeding with the operation to close the fistula, and the patient being placed in the lithotomy position, on the very edge of the table, and so held by an assistant on either side. Bozeman's bent speculum is to be introduced into the vagina, and then given into the hands of an assistant sitting on the left side of the operator, who draws the orifice downwards and backwards, whilst the assistants employed in holding the legs keep the labia drawn well apart. Having now the cavity of the vagina well exposed, the operator takes hold of the vaginal septum with a pair of vulsellum forceps, and giving these into the hands of one of his assistants, proceeds to mark out the precise extent of the mucous membrane around the fissure which he intends to remove, by making a slight incision through it with a straight knife, taking care to cut on the lower side first, for otherwise the blood flows from the higher part of the fistulous opening over the lower and obscures it. The next step is to remove this ring of mucous membrane from around the fistulous opening. This is best effected by the curved knives, one of which is for use with the right hand to pare one side of the fissure, the other for the left hand to pare the other; for the use of one or other hand in turn, according to the direction of the surfaces to be denuded, facilitates the procedure. If managed well, the portion of mucous membrane, cut obliquely inwards from around the fistula, can be removed in a single piece. The knives recommended are much preferable to scissors. The "fistula-clamp," invented by Mr. Hilliard promises to facilitate the act of denudation. Latterly, as before remarked, I have tried the plan of transfixing the two sides of the fistula by one of the curved needles, instead of holding them with forceps, previously to paring off the mucous membrane, and have found the plan answer very well.

The paring of the edges being accomplished, the next step is the introduction of the sutures. Formerly I used a straight, flexible, long needle, and passed the wire at once through it, but I now prefer a hollow one, on the principle of Mr. Startin, as first used by Dr. Simpson, in these cases, except that instead of being made of flexi-

ble metal it is of steel, and rigid, and to obviate the necessity of changing the angle, as is done with the flexible needle, I have fourteen needles of different curves, from which I may select the one best adopted to my purpose. The needle is passed within a quarter of an inch external to the denuded surface through the coats of the vagina and the muscular tunic of the bladder, avoiding its mucous living, it is thence carried across, and made to penetrate the same tissues at an equal distance from the fistula, on its other side. In other words, the two sides of the fissure are transfixed by the needle, and as this carries the wire, a suture is at the same time introduced.

Before thrusting in the needle I pass the wire through it, as far as, but not beyond, its extremity, so that as soon as it has passed through the oppsite sides of the fistula, the end of the wire can be pushed onwards beyond the point, and forthwith seized by the forceps, this done, the needle is withdrawn, and the next business is to fasten the suture so introduced.

The several sutures required are inserted in the same manner, their number must be determined by the size and general character of the fissure to be closed.

The next proceeding is to seize the two ends of each suture as introduced, and pass them through the eyelet hole of the simple bar-clamp, which, it will be seen, is slightly curved and furnished with a nipple-like projection on its back. Holding the two ends of the wire with the left hand, and seizing the nipple of the clamp with a pair of long forceps, this is pushed backwards until it presses against the fissure, and is seen to bring its edges into perfect contact beneath it. It is then necessary to firmly squeeze the nipple of the clamp with the forceps, and thereby secure the wires before cutting their ends close down upon the nipple. The pressure of the nipple at the same time straightens the clamp, and adapts it better to the surface. In the same way each suture in its turn is to be fixed by a clamp, the process of closing being carefully watched, to see that each clamp secures accurate apposition of the subjacent edges.

The advantages of the multiplication of the clamps, as I propose, by fixing one to each suture instead of having one common to all on each side the fissure, are, that it renders it easier to bring together the edges where these are sinuous or irregular ; that it secures more perfect apposition by multiplying the points of immediate contact, and by rendering the whole process of closure perceptible to the eye, that where the fissure is wide from great loss of substance, it involves less stretching of the vagina than does a long button ; and, lastly, that any one suture can be removed with less disturbance of the rest, and with greater facility, it being necessary only to cut one side of the wire under the clamp, and then draw the latter away by gentle traction with a pair of forceps.

In certain cases Bozeman's button has a superiority over the clamps, as, for instance, where the vagina is very large and lax, or where there is unhealthy condition of the edges.

The sutures are left undisturbed for ten days, after which period they should be removed, the bowels having been cleared out by injections and medicine on the day before.

Our space allows us to do little more in considering this subject than to point to the results of Mr. Brown's practice as regards this operation. It appears that he has operated on 42 cases—some of which had to be submitted to subsequent operation to complete the cure. Thirty-nine were finally cured : three died, but of these one case was fatal from pericarditis and died with the fistula healed.

We can only briefly enumerate the other subjects treated of by the author, and we pass with regret over many chapters of interest. The contents of these may be found in our observations p. 392

We are less pleased with the Chapters on the sympathetic affections in which uterine disease is the cause of symptoms referable to other organs—and *vice versâ*—because they are less novel and because they are less signal instances of the power of Surgery, than the two operations we have considered. And we must add that, in our opinion, the chapter on Sterility is exceedingly meagre.

But the concluding essay on Ovarian Dropsy is of the deepest interest. Dealing, as it does, with an operation which has been signally successful in some instances, and yet has been fatal in so many—the author has not only to analyse the experience and criticism of others, but to justify his continuance of it in the face of the most determined opposition.

To consider the subject imperfectly would be to do injustice to the author, and we therefore, unwillingly, pass it over for the present. We hope again to return to the matter when considering the arguments in favor of and against the operation.

Of the whole work we can speak most highly. The result of vast experience, conveyed in forcible and correct phraseology ; rich in general principles and accurate even in the minutest details ; it must even be considered as the best of its class as an index to operative practice in the Surgical affections of women.

We should add that the work is admirably set forth by the Publisher and fully illustrated.

GOOCH, *on some of the most important Diseases peculiar to Women; with other Papers. Prefatory Essay* by ROBERT FERGUSON, M.D., Physician Extraordinary to the Queen, &c. New Sydenham Society, 1859. p.p. 235.

WE hailed with pleasure on its republication the above valuable work which has long been one of reference to every Obstetrician, and our pleasure was increased upon the perusal of the valuable prefatory essay contributed by Dr. Ferguson.

Thirty three years ago from the press of John Murray, an historic name in the annals of modern literature, there issued "An account of some of the most important Diseases peculiar to Women, by Robert Gooch, M.D." In the summer of that year (1829) he corrected the last proofs of this his great work, and on the 16th of February 1830, he died. Even when engaged much in purely literary pursuits, and in the last months of life when borne down by grievous sickness, his energies were always devoted to the profession which he had so largely benefitted.

Frequently ailing in health Gooch had often to seek, in change of scene, relaxation from the effects of overwork and over anxiety as regards his public duties. His then companion now edits this republication of works which were at all times causes of solicitude to their Author. *Dr. Ferguson* now submits to us this admirable series of essays by his long departed friend, who, taken from the world at the early age of 46, left behind him a professional reputation that his survived these many years, and—a higher claim to our admiration—a character for genuine and reflective piety.

It is remarkable that so many of the points upon which Gooch wrote are now, as interesting as when he investigated them. And if, in the course of passing years, his theories have come to be accepted as facts, the only result has been that we have unconsciously been indebted to him who had so long slept the sleep of death.

To the prefatory essay of Dr. Ferguson, we would point, as greatly enhancing the value of the original work, for it passes in brief, but orderly, review the leading features

characterizing the works of Gooch, and alludes to more recent investigations regarding the same topics.

Of these the first was Puerperal Fever. And here we pause to see the heroic treatment suggested by the author. Bleeding *ad deliqium animi;* twenty grain doses of calomel; and half ounces of Epsom salts every second hour; were remedies in vogue in his time; and it is not without some admiration that we find that, (notwithstanding his own success in the same line of treatment) Gooch discovered this that the Fever was of many kind—each demanding the adoption of very different methods of procedure.

We look back now with pride upon a member of our profession, who despite of his own failures in using "*Turpentine*" to remedy this disease, yet recommends enquiry as to its use; admits its excellence and utility in certain cases; and, though a polished and successful London Physician with an European fame, yields with willing lips the praise due to the discoverer of the remedy who was a vulgar, clever, drunken, Irishman.

To pass, however, from topics in which Gooch is to be regarded more as the learned and scientific analyst of the works of others, or of his own personal experience, we may advert to certain points in which his originality was made apparent. His essay on "Irritable Uterus" is descriptive of a disease even now not sufficiently recognized. Dr. Ferguson fully accepts Gooch's explanation of the disease and affords his own experience that this obscure malady is "independant of vascular complication," and that it may for years continue to exist during "all the modifications of structure and function incidental to advancing age" (p. xxiii.) Dr. Ferguson's commentary on this Essay is well worthy of attention.

But it is, perhaps, more by his contributions to our knowledge of, and operative cure of, uterine polypi that Gooch is known to modern practitioners. Even now that so many years have elapsed we have never had any apparatus as once so simple and so easy of application as *Gooch's Canula.* Nor is our debt of gratitude confined to this one boon: for whether we desire to be acquainted with details as to the seat, variety, or symptoms of these growths, we find all points equally elucidated by his enquiries. We have ourselves been more successfull in the removal of Polypi by the *Canula* alluded to than by the use of the ecraseur, the knife, or wire ligature. In making this general statement

we of course confine our remark to cases for which these several modes of treatment were suitable; and in doubtful cases and where hæmorrhage may be reasonably expected to supervene upon direct division by the knife, the *Canula* and ligature will effect our purpose with comparatively little risk.

Torsion caustics and excision are no doubt often sufficient for Polypi of small size and highly sensitive—if, also, they are readily and entirely exposed to view—but for the large fibrous Polypus with a pedicle high up in the fundus of the uterus the ligature and canula are our greatest aids.

To those who have made obstetric matters the subject of study, the investigations of Gooch upon this department of science are familiar.

Upon Hæmorrhage he contributed many original and valuable remarks: and upon the signs of Pregnancy he wrote in a clear and practical manner, drawing no forced conclusions, but analysing the several varieties of signs with care and exactness.

The concluding essay is on the contagious nature ot the Plague, and of this we may fu.ly endorse the opinion of Dr. Ferguson that the reader "cannot fail to mark the breadth of argument and the polish and kenness of the style by which this imporant question is settled." Dr. Ferguson alludes to his own (and most valuable) contribution in the 46th Volume of the Quarterly Review for 1832, an, article which, with the investigations of Graves and Baly, exhausts the subject of contagion.

Such are the subjects upon which Gooch wrote, and such is the tribute of friendship that is paid by Dr. Furguson who gives to the labours of his friend the additional charm of his own commentary. We commend them both to the Readers for his studious perusal.

We think that the selection of this work for republication was most judicious. And, closing the pages of the Author, and remembering how few there are in modern times who write so modestly and with such ability, we echo the words of Shenstone.

Heu quanto minus est cum reliquis versari quam meminisse tui.

PART III.

MEDICAL MISCELLANY.

No. 12.—*Case of Aneurism of the Gastric Artery.* By Assistant Apothecary R. DONALDSON.

MR. W.—— R——, an East Indian in his 60th year, was admitted into Hospital on the 17th November, 1861, complaining of constant pain in left hypochondrium, increased on motion and on pressure; inability to lie on the back or to stand erect; loss of appetite and of sleep, and general debility. Pulse weak, frequent; skin cool; bowels inclined to be constipated; tongue foul; countenance sallow and anxious. Patient has for the last month fallen away very much. On examination a firm immovable tumour was found extending from the left hypochondrium to the epigastric region—being more prominent in the former.

Patient about twelve months previously had suffered much from pain and fulness in the region of the spleen, attributed by him to splenic disease, the result of frequent attacks, in former years, of Mysore intermittent fever.

Soon after admission the enlargement in the epigastrium was observed to increase, and about the fifteenth day the tumour had attained the size of a moderate fist, assumed a definite outline, and it pulsated visibly. The impetus of the pulsations increased occasionally, and was always attended with aggravation of the pain which now extended to the epigastrium and loins.

Stethoscopic examination revealed nothing. Respiration became short and hurried, but not distressing. Decubitus was impossible, and the only posture in which the patient could obtain any rest was being seated in a chair with his knees drawn up and shoulders brought forwards. This position too became irksome after a little and rendered the pain in the loins almost intolerable.

About 1 A. M. on the 14th December, twenty seven days after admission, the patient suddenly vomited about a pint of dark liquid and clotted blood, and a few hours afterwards passed about the same quantity per anum. This was followed by alarming symptoms of depression which left the patient in a very debilitated condition. The tumour now decreased in size, but the impetus of the pulsation continued as forcible as before. For a day or two subsequent to the hæmorrhage, considerable relief from the pain was experienced, and the patient slept better, but he was still unable to rest in any other than the sitting position. The bowels became obstinately constipated and required to be relieved by enemata. The pain in abdomen and loins soon returned, and the latter became very distressing. The debility and emaciation progressed rapidly ; all inclination for nourishment was lost ; the feet became œdematous, and it was evident that death would soon ensue from exhaustion.

On the 26th December, twelve days after the hæmorrhage, the patient suddenly expired. Rapid distension of the stomach took place almost simultaneously with death.

By permission of his friends an examination of the body was made about fifteen hours after death.

On opening the stomach, which was considerably distended, it was found to contain upwards of three pints of fluid and clotted blood, which had its source in a tumour situated in the lesser omentum. The omentum itself was much thickened and indurated, forming a dense mass extending into the left hypochondrium. The tumour in the lesser omentum was found to be in connection with the gastric artery which was the seat of a large aneurism situated along the lesser curve of the stomach, imbedded in the thickened omentum, and firmly adherent to the stomach with which it communicated by an opening about half an inch in size.

On opening the aneurismal sac it was found to contain coagula adhering to its lining membrane, the internal surface was rough, thickened and laminated—the laminæ appearing like fibrinous effusions and being easily detached. The edges of the communication between the aneurismal tumour and the stomach were hard and well defined.

The spleen was small and shrivelled, but healthy in appearance. Liver normal.

The contents of the thorax were pushed high up into the cavity.

Remarks.—The interest attaching to this case lies in its rarity, and, in a certain degree, the obscurity in which it was enveloped. On admission there was no symptom sufficiently prominent to rouse suspicion of the existence of aneurism. The patient having on a former occasion suffered from splenic disease, and his present ailments being referred principally to the left hypochondrium, it was rather hastily inferred that the pain complained of was due to a return of the old affection of the spleen. At this time there was no pulsation evident either to the feel or to the patient's senses —or it must have been so trifling as to have escaped his notice.*

Slowly however the epigastric enlargement increased, and coincidently pulsation became perceptible first to the feel and then to the eye. At this stage, aneurism of one of the vessels proceeding from the cœliac axis was diagnosed, and it was presumed that the *splenic* was the one implicated.

On careful stethoscopic examination no *bruit* was distinguishable.

The epigastric enlargement taken in connection with the pain in the abdomen and loins, and the obstinate constipation, indicated the existence of a tumour exerting undue pressure on the nerves and intestinal canal. The evidence in favor of this tumour being aneurismal was furnished by the powerful pulsation communicated to the hand, and visible to the eye. It was scarcely possible to attribute such pulsation to any tumour situated over the abdominal aorta and to its receiving an impulse therefrom.

The presence of the *bruit* would perhaps have removed all doubts regarding the character of the case; but its absence proved nothing. It is a recognized fact that it is often entirely absent—it was so in 25 per cent. of the cases analysed by Dr. Francis Sibson†—and Dr. Watson instances a case in which it was present only in the early stage of the

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* Dr. Stokes, of Dublin, accounts for the absence of pulsation by the fact of aneurisms of the branches of the Cæliac axis lying "in a capsule of extensible serous membrane" and adds, "the violence of impulse both of the heart and arteries, in health or disease, seems *cæteris paribus* to increase in proportion to the resisting nature of the surrounding parts." [Vide Dublin Jour. of Med. and Chem. Science, Vol. v., p. 405, 1834.]—Ed. M. *Q. J.*

† Medical Anatomy, p. 65.

disease, and absent at a more advanced period. It is possible that the absence of *bruit* in this case may have arisen from the thickened omentum (in which the aneurism was imbedded) being a bad conductor of sound.

All uncertainty as to the nature of the case was dispelled on the setting in of the hæmorrhage from the stomach and bowels. It was very properly attributed to the rupture of the aneurismal sac; and the immediate diminution in the size of the tumour confirmed this idea. The question, however, *which* was the vessel engaged, and how its contents found their way into the stomach, did not admit of so ready a solution. From the extension of the enlargement into the left hypochondrium, it was supposed that the splenic artery was the seat of disease, but the absence of pulsation, in this direction made this a doubtful point. This enlargement was subsequently ascertained to be owing to thickening and induration of the great omentum along its attachment to the transverse colon.

Not the least remarkable post-mortem appearance in this case was the diminutive size of the spleen. The patient had, many years ago, suffered much from Mysore intermittent fever, which left behind it considerable *enlargement* of the spleen, and, up to twelve months ago when he was last under treatment, was a source of constant discomfort to him. This atrophied condition of the spleen had apparently no connection with the aneurism; but it seemed to be the result of the pressure of the omental mass on the splenic artery—thus cutting off the normal supply of blood from that organ.*

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* Instances corroborative of Mr. Donaldson's remark may be found in Chelius' System of Surgery, edited by South, who at p. 200, vol. 2nd, gives several examples of obstruction and obliteration of *veins* by aneurisms of contiguous arteries. We would here direct attention to the very clear and practical remarks, on points of diagnosis in cases of abdominal aneurism, contained in Mr. Gray's work on Anatomy which we noticed in our Third Volume (p. 162) —and in doing so would in passing record our deep regret at the loss which science has sustained in the death of this gifted author.

It will be seen that the description contained in the 2nd para. of the following quotation applies most appropriately to Mr. Donaldson's case.

Mr. Gray remarks,

"When an aneurismal sac is connected with the back part of the abdominal aorta, it usually produces absorption of the bodies of the vertebræ, and forms a pulsating tumour, that presents itself in the left hypochondriac or epigastric regions, accompanied by symptoms of disturbance of the alimentary canal. Pain is invariably present, and is usually of two kinds, a fixed and constant pain in the back, caused by the tumour pressing on or displacing the branches of the solar plexus and splanchnic nerves, and a sharp lancinating

No. 13.—*Draughts of Ergot of Rye.* By H. B. Montgomery, M.D., F.R.C.S.I., &c.

The frequency with which, in India, we meet with cases requiring the use of this drug induces me to place on record the formula according to which my late father was accustomed to order the above. And in doing so I may add the instructions for preparing them.

For these I am indebted to Mr. Donovan of Dublin, whose contributions to Pharmacy and Therapeutics have deservedly placed him high in professional esteem.

Having myself on more than one occasion experienced much difficulty in keeping Ergot of Rye free from insects, and in rapidly preparing it for use, I applied to Mr. Donovan for the formula above alluded to, and the following was his reply.

"Ergot in powder ʒ i.

"Boiling water ℥ ii., which divide into two draughts.

"The Ergot powder not to be strained off, but left in the draught. The Ergot should be powdered without drying.

* * *

"In order to have these always ready and in proper order, I added a teaspoonful of spirit: vini or brandy and ʒ ss. of Ætherial Tinct. of Ergot."

These draughts will keep for a very long time if preserved in bottles with *ground glass* stoppers, and they are so

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pain, radiating along those branches of the lumbar nerves pressed on by the tumour; hence the pain in the loins, the testes, the hypogastrium, and in the lower limb (usually of the left side). This form of aneurism usually bursts into the peritoneal cavity, or behind the peritoneum, in the left hypochondriac region, or it may form a large aneurismal sac, extending down as low as Poupart's ligament; hæmorrhage in these cases being generally very extensive, but slowly produced, and never rapidly fatal.

"When an aneurismal sac is connected with the front of the aorta near the cœliac axis, it forms a pulsating tumour in the left hypochondriac or epigastric regions, usually attended with symptoms of disturbance of the alimentary canal, as sickness, dyspepsia, or constipation, and accompanied by pain, which is constant but nearly always fixed in the loins, epigastrium, or some part of the abdomen; the radiating pain being rare, as the lumbar nerves are seldom implicated. This form of aneurism may burst into the peritoneal cavity, or behind the peritoneum between the layers of the mesentery, or, more rarely, into the duodenum; it rarely extends backwards so as to affect the spine. [Vide Gray's Anatomy, Descriptive and Surgical, 2nd Edition, p. 388."]—Ed. *M. Q. J.*

portable that they may be conveniently carried in the waistcoat pocket.

I can from experience answer as to their efficacy several months after their preparation: and I would strongly recommend my brother practitioners to have a dozen of them made up from fresh good Ergot, on their next receipt of annual supplies of medicines.

The time saved by the use of these draughts, in lieu of the extemporaneous preparation of them, is of no little importance in urgent cases.

No. 14.—*Removal of a Fibrous Tumour from the Sacrum and Coccyx weighing thirteen pounds.* (Recovery). By Walter A. Leslie, M.D., Medical Officer Neilgherry Hills, formerly Civil Surgeon of Cochin.

(With an Illustration.)

Case.—Ramah, aged 16, caste Toddy drawer.

Was admitted into the Hospital of the Rajah of Cochin at Ernacollum on the 8th of July 1858. The following is the previous history of his case; at birth he was a healthy child, with the exception of a small tumour situated just over the sacrum; he continued to grow and to thrive, but unfortunately the tumour grew also, until it obtained the relative size shown in the drawing. Up to his fifteenth year it was soft and painless, had only arrived at about three-fourths of the size it was on admission, and occasioned the boy so little discomfort that until that age he followed his employment of a toddy drawer and used to ascend the cocoanut trees daily in the usual manner.

About a year ago, however, his health began seriously to give way, the tumour became hard and painful, and six months since began to ulcerate, and from that time had been gradually attaining the state it was in when he applied for relief.

Present State.—Its appearance was exactly such as is depicted in the accompanying drawing (Pl. IV.) The skin over the tumour presented a thickened corrugated appearance, and at the apex of the depending part there was a large foul ulcer about four inches in diameter filled with

fungoid excrescences. On lightly examining it, it presented to the touch a doughy semi-fluctuating feeling, but on making deeper pressure the centre of the mass was found to be firm and unyielding and attachments appeared to exist over the whole sacrum and part of the ilium on each side. The tumour was diagnosed to be fibrous—several small tumours existed over different parts of the body, about the size of a large pea, apparently encysted,—these were said to have been stationary since childhood.

One could not but look upon an operation of so formidable a nature with some misgivings as to the result, but as it was evidently the only means of giving the boy a chance of living, and as his friends were anxious that a burden which was gradually dragging him down to his grave should be removed at any risk, the operation for its removal was determined upon.

An attempt was first made to improve the boy's general health, the tumour was supported, by means of bandages and straps, from the shoulders; and generous diet with tonics administered, and charcoal poultices constantly applied to the ulcer.

This course was persevered in for about ten days, but as there was then no decided change for the better, it was determined on to remove it without further delay. I was most ably assisted by Mr. Gunther, the Rajah's Apothecary, and Mr. Asst. Apothecary Osman attached to the civil station of Cochin.

Operation.—Chloroform was administered, and when the patient was fully under its influence, he was lifted to the edge of the table, lying on his left side: the tumour was supported by the Dresser and well raised. An incision was then made through the skin along the under side, commencing at the top of the sacrum and ending at the coccyx. This was dissected off towards the root of the tumour, a similar incision was then made on the upper side, and the tumour eventually removed, but this was a matter of much time and no litttle difficulty. It was so deeply attached and so blended with the neighbouring structures, that it was not easy to know how much to remove and what to leave. The skin was intimately adherent over the whole surface, requiring regular dissection, and the vessels, numerous, and sometimes of considerable size; all of these had to be carefully secured as the operation proceeded—the glutei muscles were

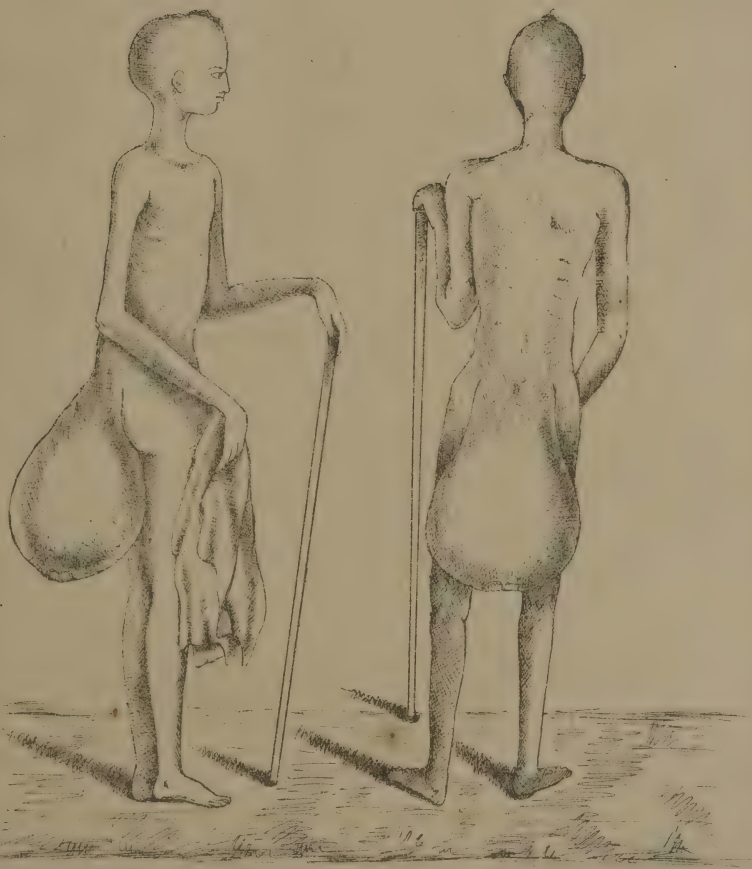
atrophied, and some of the fibres, which were exposed in the course of the dissection, were pale and bloodless. The principal blood-vessels nourishing the tumour entered from its circumference; very few were found in the centre of the neck. The loss of blood was considerable, but not so much as might have been expected; each vessel was tied as divided, and both ends of the ligature cut off: the tumour on removal was found to weigh thirteen pounds, and a section shewed it to be fibrous, presenting the white glistening ligamentous structure so characteristic of this kind of growth. I was at first sorry to find that I had not dissected off enough skin to close the wound after the tumour was removed, as a considerable gap was left between the edges. But, during the treatment of the case this proved to be no disadvantage, but rather the contrary: for, there having been some suspicious appearance of unhealthy action in the sore, there was full vent for the discharge and the necessary local remedies could be applied with direct effect. About an ounce and a half of chloroform was administered during the operation. There was alarming prostration with much vomiting for twelve hours after the operation. The patient was carefully and almost constantly watched and dressed by Mr. Apothecary Gunther.

After treatment.—An attack of diarrhœa threw him back a good deal and made us anxious, but he has wonderfully weathered this danger and is now walking about in comfort and comparative health. The sore has healed by granulation, and I trust the growth may not return; there is some slight distortion of the pelvis owing doubtless to the great weight dragging in it for so many years.

No. 15.—*A Report upon Calagouk or Curlew Island in the Gulf of Martaban, proposed as a Sanitarium for British Troops.* By D. Macpherson, M. D., Inspector General of Hospitals, Madras Army, &c. Honorary Physician to Her Majesty.

[We have much pleasure in republishing from the Records of Government the following Report recently submitted by Dr. Macpherson.

We learn from the proceedings of Government that this



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report has been transmitted to the Secretary of State for India.

We are not without hope that the rapidly improving financial condition of India will soon allow of the selection of Sanitaria for all British Troops, and that they may be soon made available for occupation. We believe that, though attended in the first instance with additional expense to the State, they will prove eventually the means of actually diminishing the cost of maintaining the European troops in a healthy condition.]

DR. MACPHERSON'S REPORT.

In the course of my inspections of the several stations of the Army during the past three and half years, I have submitted to Government my views of the beneficial effects to the European constitution, in health and in convalescence from disease, of a residence on elevated mountain ranges, as a prophylactic remedy under peculiar states of the system. I pointed out during the progress of my tour, how peculiarly favored the Presidency of Madras is, in possessing elevated ranges contiguous to the chief Military posts, and I selected certain places on the Coast as the most eligible which came under my notice as places of resort for invalids, whose health would appear to derive benefit by a residence there.

2nd.—There are however certain disadvantages in all Sea Coast localities situated on the main land and possessing no elevation, such as the absence of sea breeze and the deleterious effects of land wind passing over miasmatic or extensive tracts of low arid plains at certain seasons, which an island of moderate dimensions is comparatively free from, when placed in the midst of the ocean, possessing bays, sandy beaches, and an undulating surface, a good water supply and capabilities for draining.

3rd.—The subject of Sanitaria for European troops stationed within the tropics, has engaged my special attention for many years—but hitherto I have in vain searched for a locality such as I have now adverted to. There is no place answering the description contiguous to the vast line of Coast between Bombay and Calcutta, and in the Straits of Malacca, although the Island of Penang certainly possesses very many advantages—it has its disadvantages also. It has no protected sandy bays, and the low land is so little above the level of the sea that it is incapable of efficient drainage. Hence "the hill," which is upwards of 2,000 feet high, is the only place of resort for invalids; and it is surrounded by such an extent of forest and low land,

that it cannot, strictly speaking, be viewed as a Sea Coast Sanitarium. It is moreover too distant from our possessions in India to make it a place of general usefulness.

4th.—During my inspection of the Pegu Province, I learned that European invalids of all classes when they require a change, are sent to the Coast and thence transported to Madras, at a great cost to the State in money and in loss of services, and no place in India can be worse adapted for sick men than the Depôt at Poonamallee, where these invalids are sent, (vide my Report on that locality.) There are insuperable obstacles to the establishment of mountain Sanitaria within, or contiguous to, the British possession in Burmah; such desirable localities being situated in inaccessible position, both as regards difficulty of communication and distance from stations, insalubrity of intervening low country, want of population and of supplies en-route. Our existing well tried Sanitaria in India, ought to be the sole places of resort for European invalids whose constitutions benefit by a residence on elevated localities, and to this end, as regards the Pegu Province, the object of Government should be to improve the communication from the frontier stations to the sea, and to establish a Sea Coast Sanitarium in a convenient position for such as are likely to benefit by a residence there.

5th.—The wonderfully remarkable sanitary condition of all European residents in the interior and on the Sea Coast of Burmah, the extent of that Coast and the group of Islands which stud its shores from Amherst to the Mergui Archipelago, naturally drew my enquiries in that direction. I was thus brought into communication with Captain A. Fraser, of the Royal Engineers, Superintendent Alguada Reef Light House, now under construction, an Officer fully acquainted with the Sea board of Burmah. Duty obliging Captain Fraser to proceed in the direction of Mergui, he very obligingly agreed to afford me an opportunity of personally inspecting the line of Coast and Islands contiguous—and on my solicitation he cheerfully acceded to co-operate with me in the important field of inquiry which engaged me—thus aiding me with much valuable practical experience in his professional capacity, acquired in a career of twenty years in selecting and laying out sites for the Cantonment of troops and in the construction of barracks.

6th.—Amherst was the first place we visited, and, in the absence of an Island Sanitarium, there is no doubt that it presents the most eligible site on the Coast. In form it is a promontory of land washed on one side by the sea, and on the other by the Moulmein river as it disembogues into the sea. It is well elevated and possesses an open porous sub-soil, beneath a clayey super-stratum. But it has the disadvantage of dense jungle and

swampy ground to the North-east, and muddy water on the river and sea sides—yet with judicious clearing and draining, Amherst would doubtless become a very desirable locality for invalids.

7th.—Calagouk or "Curlew Island;" the Mozcos, contiguous to the mouth of Tavoy river; Tavoy Island, half way between Tavoy and Mergui; and King's Island, opposite Mergui, came respectively under our inquiries.

Of these the first which occupies the subject of this Report is that in every respect the most suitable for a Sanitarium.

8th.—Curlew Island, the Head-quarters of the Alguada Reef Light House establishment, is situated in the Gulf of Martaban, thirty miles south of Amherst, point in latitude 15° 52′, and in longitude 97° 42′. It is eight miles long, exclusive of Cavendish Island, which lies at its extreme south end, and which is half a mile in length. The greatest breadth of the Island is about one and a quarter miles; and on its highest part, which is about 500 feet above the sea, are the "remarkable trees," a point for navigators in making the Coast, laid down in all Charts.

9th.—The base of the Island is primary rock, the super-stratum being a rich mixture of open porous soil, composed of sand and vegetable mould. Its formation is very peculiar, the northern and southern portions differing considerably. The northern half, on the western side is composed of a long granite ridge with an average perpendicular drop to the sea varying from 200 to 300 feet. To the east the ground descends to the sea in gentle, or abrupt, slopes. The opposite side of the Island is broken into alternate, or isolated, hills with level well raised, the intervening spaces forming three bays; the first Quarry Bay, where the stones are now being prepared for Alguada Light House, is the deepest. At high water the beach is sandy, but at ebb tide, an extensive mud-flat covered in places with mangrove is exposed; the somewhat narrowness of the channel between the Island and the main land on this side, tends to the accumulation of mud.

10th.—The southern half of the Island differs entirely from the northern, inasmuch as both sides are broken into bays. To the west Retreat Bay, Rocky Bay, Sea Bay and Fish Bay, are beautiful hard sandy beaches, well protected by high land on each side and open to the ocean in front, with a fine rolling surf on the beach; and only divided from one another by projecting rocky points, and from the corresponding bays on the eastern side, by well raised necks of land, sloping east and west, free from all swampy ground and ascending north and south to the hills which divide the bays. The eastern bays look on the distant mainland rising (over Bentick Sound) in bold outline on the horizon.

These very much resemble the western bays, in fact differing only

by the mud uncovering at half-tides, the rise and fall at spring-tides being 22 feet. All the bays on the eastern side are perfectly protected from the south-west monsoon, while during the north-east monsoon, the bay and the western side and the deep water close up to the ridge on the north, affords a free, open and safe place for yachting and boating. The bays on both sides are peculiarly well suited for bathing, the water on the western side especially being always pure and clear.

11th.—Ascending from Retreat Bay, the ridge referred to in paragraph 9 is reached. This ridge and indeed the entire island is clothed with fine primeval forest, with trees of immense dimensions and height. Under their over shadowing branches, a well shaded road might with ease be carried along the ridge, having the open ocean on one hand, with a view of the fine contour of the island itself and the bold coast of the Tenasserim Provinces in the distance beyond, on the other; here and there, this ridge opens out into plateaux, forming beautiful sites for houses; and, with the exception of a slight rise about the centre, the road would nearly run on an uniform level for a distance of five miles. The same road might thus be extended to the southward, encircling the bays and crossing the intervening points of land, and also to the northern part of the island where there is a considerable space of garden and cultivable ground. The free percolation of air by means of these roads, judicious clearing for building sites, and the adoption of measures to facilitate the natural drainage, three years prior to the occupation of the Island for sanitary purposes, are measures of the highest urgency and importance.

12th.—The Island has now been occupied by a large party of workmen since April 1860. Usually the Pioneers, or first settlers in every locality, suffer considerably, especially when no prior arrangements have been made to guard against disease. In the present case, a large body of natives of India, Burmah and China, European officers and subordinates, entered on operations of a harrassing nature at the hottest season of the year. Quarry Bay, where they settled, is, sanitarily considered, by no means the best locality to settle on; but the presence of good stone and the facilities for shipping it to the Reef, induced the Superintendent to fix his Headquarters here. I append a Return of the strength of the establishment, the prevailing diseases and the mortality from the 30th April 1860, to 30th April 1861, from which it will be observed that every thing considered, the sick and death rate have been unusually small. It must be borne in mind, that the party for many months had little or no protection by night or by day, and that their huts occupied unwholesome sites in the midst of felled jungle; yet the report presents a gratifying immunity from the graver diseases. The fevers were chiefly of an ephemeral nature, the sick list being chiefly kept up by local injuries and their results, diseases not contracted on the

Island, and cutaneous affections from the want of antiscorbutic articles of diet.

Daily Average per cent. of prevailing diseases from 30th April 1860 to 30th April 1861.

	May.	June.	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	Averages.
Strength.....	212	209	295	367	400	433	495	502	480	480	705	710	440
Dysentery.....	·09	2·07	0	0	0	0	·10	·36	0	·14	0	0	0·23
Ulcers	0·7	5·1	3·1	4·1	5·5	3·8	2·6	·35	4·1	2·1	2·08	3·64	3·36
Fever.....	0·8	1·0	0·9	1·0	1·2	1·5	3·4	4·9	4·1	4·1	2·3	1·55	2·17
Other diseases...	5·05	8·61	6·13	6·14	7·05	8·01	4·25	8·99	8·30	16·74	11·99	22·22	6·13

There were nine deaths during the year from diseases contracted on the Island, viz. :—

Three from Dysentry in January.

Three from Fever from exposure—one in July, one in November and one in January.

Three from Accidents and other Diseases.

No deaths occurred amongst the Europeans.

13th.—During my residence on the Island, in the months of May and June, the climate was exceedingly agreeable. The nights were cool, and no punkahs were necessary during the day. In fact, a refreshing sea-breeze was present at all times in every part of the Island visited by me during the day, and a blanket was always grateful at night. The average Thermometer at this period during

the day is 75°, during the hot weather it is 83°; and Captain Fraser speaks in glowing terms of the climate at all seasons, as compared with that in Calcutta. Water of an excellent quality is procurable at a depth of fifteen feet, and a perennial spring of sweet water flows through the centre of the Island. The rain fall, Captain Fraser thinks, is under that experienced on the main land opposite.

14th.—One great advantage of this Island is its proximity to Madras and Calcutta and to the principal stations in Burmah. The large town of Yea and the village of Lemyne, are on the opposite main land from whence small boats with supplies are constantly arriving; and it is on the direct line of communication, between Calcutta and the Ports of Tavoy and Mergui; so that with properly arranged communications there need be no difficulty in furnishing it with supplies. China Junks bring fruit and other articles to the Island, and fish of an excellent quality is procurable in the bays.

15th.—Besides affording many beautiful localities for private houses, abundance of space is available, for one thousand men, on eligible sites. But the planning and laying out of the Island so as to turn it to the best advantage, must be placed in the hands of a person well acquainted with its capabilities and who has an interest in the work. Captain Fraser's other duties constrain him to reside on the Island for many months of the year—we have gone together all over it, and by his report which accompanies this, it will be observed how fully he concurs with me in its capabilities, and that with the sanction of Government, he is willing to undertake the superintendence of the preparatory improvements above recommended. No one is better qualified to undertake this important duty than Captain Fraser, for, in addition to his practical knowledge as an Engineer, he takes a deep interest in the improvement of the place with the view to its future occupation. I beg therefore to recommend that Government avail themselves of the opportune residence of this able officer on the spot, and place a grant of money at his disposal, with full power to expend it to the best of his judgment. Mr. Cromarty, the Surgeon in charge, an able and observant medical man, proffers his assistance in keeping careful Meteorological observations, or in any other way that Captain Fraser may employ him.

6th.—As I have already observed, no place has come under my observation within these tropics, during a long period of close inquiry, possessing the numerous advantages for a "watering place" or a Marine Sanitarium, which this Island presents. The equability of its climate, its protected sandy bays and beaches, and its pure sea-water, with the whole expanse of the gulf in front, make it a peculiarly desirable locality for bathing purposes. The numerous means of recreation that always present

themselves on the sea-shore, its excellent water supply, well raised surface, eligible sites for buildings and the fertility of its soil, its moderate dimensions, whereby the entire Island can with ease be kept under satisfactory hygienic control, and the facility of its approach at all seasons, and above all, its already proved excellent qualities as a Sanitarium, under many disadvantages, mark it as a most promising locality, especially where structural disease is threatened, and demand that Government take an interest in its development. In conclusion, I may state, that no case of sickness or death has occurred amongst a large number of women and children, families of the working residents, since the first occupation of the Island.

No. 16.—*Ebrietas and Delirium Tremens in 3rd Madras European Regiment (108th Regiment of Foot.)*

We are indebted to the courtesy of Surgeon Major C. W. Pickering of the above Regiment for the following statement of the No. of cases of Ebrietas and Delirium Tremens occurring in this Regiment since its formation in 1853 : it was raised on the 15th of November in that year.

We have therefore a statement extending over a little more than 8 years, and with a total of admissions amounting to only 12 cases, of which only ten occurred in the actual ranks of the Regiment. The fact of the youth of the corps may in part account for the very favourable indication of the general sobriety presented in this Return.

3rd Madras European Regiment.

Years.	Ebrieties.		Delirium Tremens.	
	Admitted.	Died.	Admitted.	Died.
1853-54	0	0	0	0
1854-55	0	0	0	0
1855-56	* 2	0	1	0
1856-57	2	0	2	0
1857-58	0	0	0	0
1858-59	3	1	0	0
1859-60	0	0	1	0
1860	0	0	1	1
1861	0	0	0	0
Total	7	1	5	1

* An *officer* who was twice admitted into *hospital.*

No. 17.—*A Case of Hydrocele (with contents simulating Chylous matter).* By Native Surgeon T. RUTHNUM, Nellore.

Present State.—CAMATCHIGAUDOO, Æt. 25, Potmaker, Nellore. Admitted on the morning of 9th November 1861, with hydrocele of the right tunica vaginalis of the size of a large orange, stated to have re-appeared after an operation for tapping performed about 20 days ago by the Dispensary Dresser, when although an injection consisting of equal parts of tincture of iodine and water was thrown into the sac, the secreting faculty of the membrane thereof was not destroyed—either perhaps the fluid was too weak to excite irritation sufficient to produce the requisite amount of inflammation; or the case is one illustrative of those in which the disease sometimes returns in spite of radical means of treatment.

Operation.—But the striking feature in the case is in the character of the contents, which on being drawn a second time, were of the colour of milk with a greenish yellow tinge, thick and of the appearance of purulent or mucopurulent matter, measuring 13 ounces in amount. Anxious to know the composition of this fluid, chemical tests were applied and heat, nitric acid, and bichloride of mercury, all gave unmistakable evidence (especially the two former) of the presence of albumen in large quantity. Bowman says, "if the albumen is present only in minute quantity, it may cause merely a delicate opalescence; or, when in larger quantity, it may separate in curdy flakes; and if very abundant, may cause the liquid to gelatinize, and become nearly solid." The fluid under consideration was so saturated with albumen, that on heating the test tube, its contents became so solid that it could be inverted and shaken without the mass falling out.

Another still more striking point in the case before us is the spontaneous formation of an imperfect coagulum, i. e., imperfect in its organization.

This was seen when the fluid was, for the purpose of chemical analysis, poured from a chatty into a porringer, when a thin and friable coagulum dropped into the latter and soon dissolved away, leaving behind a thin, white and semifibrinous mass of the size of a quarter of a Rupee. So copious was the albumen that when the porringer was placed on a fire, the whole of its contents were speedily converted

into a thick mass like cheese, amounting to 8 ounces with a thin yellow film resembling fat. There was of course a great quantity of water in this homogeneous substance, which was partly squeezed out on a glass filter, but which was greatly removed almost to desiccation by heat on a water bath, eventually leaving about 10 drachms of solid albumen. The usual tests for pus and mucus were also employed, but they did not indicate any trace of such matters. It follows from these phenomena that the fluid before us is evidently of an albuminous character, a portion of the albumen thereof being so highly organized as to make a near approach to fibrine.

Subsequent Treatment.—Tincture of Iodine very slightly diluted was injected into the sac, and the necessary amount of inflammation ensued, followed by a speedy cure.

Remarks.—The question now naturally suggests itself as to whether this fluid is the same as that which transudes through the capillaries of the kidneys, and which imparts to the urine a milky appearance, giving it the name of chylous* or chyloserous urine: and secondly, whether it is due to the same pathological state, viz., imperfect assimilation of food matters. If the fluid happened to be similar we should expect the same state of cachexia, which is generally supposed to be necessary for the production of the latter disease. Such does not appear to be the case, for the patient in question is apparently in a good state of health, although inclining to be slightly dyspeptic occasionally. But in rare cases the disease has existed under conditions of normal health. Moreover if such malassimilated matters were in the blood of our patient, it is more likely that the kidneys would serve as the excretory media than the serous membrane of the testicle. If then we assume that nature attempted to get rid of the noxious matter through the exhalents of the tunica vaginalis, the morbid action thereof being checked by the treatment, the kidneys would take on a vicarious action. But the man's urine was quite healthy after, as before, the operation. May we therefore from these observations conclude, that the product in question is chylous, and that it is dependant for its formation upon some peculiarly morbid state of the T. vaginalis? These remarks I diffidently add that men better able to judge may decide as to the nature of the case.

* A case of this kind with remarks may be found in Vol. 1, p. 180—184 of this Journal.—ED. *M. Q. J.*

No. 18.—*A Report on a Species of Malignant Fever in the Saugor District, in* 1859.

We reprint from the Records of the Government of the North West Provinces, a Report upon a form of malignant Fever, probably Typhoid in its character, and which appeared in the year 1859. It is not, as will be seen, a purely professional document, but is very interesting and worthy of perusal.

It is composed by Captain G. F. S. Browne, the Deputy Commissioner of Saugor.

We are inclined to insert it in the hope that, should any similar Epidemic be witnessed within the limits of this Presidency, or in any part of India, we may be favoured with an account of it.

REPORT ON A SPECIES OF MALIGNANT FEVER, PREVAILING IN ZILLAH SAUGOR IN 1859.

I have the honor to submit the following report on the Malignant Fever that raged in this district, between the months of June and November 1859. Dr. Rice, the Civil Assistant Surgeon, having already furnished a very full report to Dr. Murray, of the symptoms and course of the disease in different cases, it only remains for me to trace the commencement and progress of it through the district.

2. It is worthy of note, that the out-turn of the Rubbee of 1859, was remarkable for its great abundance. Grain was extremely cheap, and I have never, in an experience of nearly 9 years, known the mass of the people so well off for food of the best description.

3. Origin.—The rains set in rather early, and a long break ensued at the end of June, and commencement of July. During this interval the disease made its first appearance, but it was not until much later that the peculiar and fatal symptoms attending it were brought to my notice. These I learned partly in conversation with zemindars, and partly from my Police Officers, and I mentioned them to Dr. Rice. He had not at that time had a case under his care, but lost no time in seeking for one, and, after further experience, pronounced the disease a species of Typhus Fever.

4. Symptoms.—A sufferer, attacked with it, would feel listless, and disinclined to exertion. Loss of appetite, and pains in the limbs, were also premonitory symptoms. These were followed, at the end of three or four days, by fever, which would last two days. The patient was then left in a cold sweat, and in

a state of perfect exhaustion, and, if the strongest stimulants were not administered, and the sufferer watched with the utmost attention, the vital powers gave way, and death ensued. Affections of the lungs, and copious bleeding from the nose, were also attendant symptoms of the disease.

5. Measures adopted.—As soon as I became aware of the extent to which the people were suffering, all the medical aid available was sent into the district, and medicines were distributed among the Police Officers, with simple directions for administering them. In the majority of cases, in which the Native Doctors sent out had a fair chance, and the sick took the stimulants, life was saved ; but in too many instances the people objected to this form of remedy, and wanted to adhere to those prescribed for ordinary fever, such as they had hitherto been accustomed to.

6. It may be imagined how much this prejudice tended to frustrate our intentions in sending out medical aid. Still, good was done. I have seen the cholera raging here, but it has never been my lot to witness such a feeling of panic as existed among the people in September and October 1859. Cholera they knew, and had some remedies for it, in which they trusted. This fever, however, was quite a new disease. Their medicines failed, and death was rapid and certain. Whole families were cut off, and villages nearly depopulated. Young and old alike suffered, and as the sufferers (though ailing for days) were probably only confined to their houses for two days before death, the usual report of the disease from the villages was, that the fever attacked a person one day, and he died the following day.

7. This epidemic lasted with force until 1st November, and from that period, as the cold weather set in, its violence abated, and it gradually disappeared. It was most fatal among the poorer classes, those who were ill-fed and housed. The higher classes did not escape, but the disease did not visit them so frequently, and their better habits of life rendered them more able to withstand the advances of the attack.

8. Institution of enquiries as to origin, &c.—With a view to ascertaining some particulars as to the direction from which this disease had first made its appearance, I issued orders to all my most intelligent officers to institute enquiries on this point.

9. Result of enquiries.—The result was, that I ascertained that in the Benaika tehselee, the first cases appeared from a south-easterly direction towards Dumoh. Towards Malthone (to the North) the disease had crept up from Saugor and Khorai. In the Khorai tehseelee it advanced from the south in July or August. In Deoree, (towards the Nerbudda.) where the disease was very virulent, it advanced from the Saugor direction in July. In Rehlee, the first cases appeared at Gurhakotah ; late in June, or

early in July, due east of Saugor, on the edge of the Dumoh district. It was very fatal in this Pergunnah. From Rahutgurh, reports came that the disease had shewn itself from the west, from Bagrode, Garispoor, and Semassin, the states of Bhopal and Scindiah ; and travellers who passed through from that direction, said that for 50 coss to the west, the same disease was prevalent. Added to the above information, there was an universal report that all the oldest inhabitants said, that they never remembered such a disease before, and that it was entirely new in its symptoms.

10. NOT CONFINED TO THE SAUGOR DISTRICT.—It must not be supposed, however, that this fatal epidemic was confined to the Saugor district alone. From enquiries, I ascertained that it prevailed in the Dumoh and Chundeyree districts, and at a later period I believe, in Nursingpore ; Bhopal and Scindiah's dominions were also suffering from the same type of fever. The Bunjarahs, who were questioned, on their arrival from all parts of the country, as to the existence of the disease elsewhere, stated, that it raged for 100 miles on all sides, taking Saugor as a centre. This may be an exaggeration, but it certainly shewed itself in Punnah, and some of the Native States adjoining.

11. EXTENT OF MORTALITY.—From the rough and incomplete returns of deaths that I was enabled to procure, I estimated the loss at about 23,000 souls. The majority being of the lower orders, and a vast number of cultivators, who, from their being constantly exposed in their fields to alternate wet and intense heat, appeared peculiarly liable to the disease.

12. The city of Saugor suffered severely, whilst the prisoners in the Jail were almost free from it. In November, when I commenced my annual tour, I visited many of the villages, in which the fever was still thinning the population. The people were cast down and disheartened to a degree, and they told me that they had even been obliged to dispense with the usual ceremony of burning their dead, as there was no one who would fetch wood for the pyres, owing either to sickness or terror.

13. DIRECTION FROM WHICH THE DISEASE APPEARED.—My inquiries have not tended to deduce any proof of the direction from which the disease first advanced, but I am satisfied, that in the Native States to the west, and in the district of Dumoh to the east, it was equally virulent and fatal as in my district ; and, strange to say, in the tehseelee of Rehlee, in which the people are generally better off than any other parts, and the climate is more highly esteemed, the disease was more severe than elsewhere.

14. CONTAGIOUS OR NOT.—Whether this epidemic was contagious or not, appears to be an open question ; but from the way

in which members of a household were successively cut off, and from the advance of the disease from all sides, I cannot help thinking that it was so.

15. The immediate origin of such a type of fever might very justly have been attributed to filth and crowded houses, had it been confined to towns alone, but I found it had equally ravaged the closely inhabited villages and the small hamlets, situated in most salubrious localities.

No. 19.—*Suggestions for disinfecting the Sewage of Madras.* By G. Norton, Assistant to the Professor of Chemistry, Medical College, &c.

[The following communication appeared in one of the leading papers in Madras on 19th February, and we are induced to reprint it for permanent record. We are glad to learn that Mr. Norton has been directed to report upon the best method of carrying out his suggestions; and we hope in a future number to be able to give the particulars of his Report.

The drains alluded to in his letter are the same to which Surgeon Major Barclay alludes in the cases quoted by Mr. Cornish at pp. 307—311 of our present volume.]

"Between the hours of 2 and 3 o'clock in the morning of the 18th February, I awoke from sleep, my body in a shudder, forehead and temples bathed with a clammy and sickly perspiration, a most offensive odor filled my house; I felt sick at stomach, and a few minutes after awaking had a severe headache. On reflecting as to what could have been the cause of my ailment as I retired to bed in health, the thought struck me that the offensive and sickly effluvia arose from the sewer at the north-east end of the Fort having been opened, and to it I attributed the train of symptoms. At break of day I had a foul tongue, the sickly and depressed feeling with headache lasted more or less during the whole day, and my breath was tainted with the odor of the noxious effluvia from the drain. I reflected over my distressed condition, and could not but come to the conclusion that if subjected week after week to the influence of these poisonous emanations in their intensity, I must sooner or later fall a victim to some zymotic disease, it may be typhoid or other low depressing form of fever, or cholera; and not only will I be a victim, but some tens and hundreds of the fellow citizens of Madras will succumb to the destroying influences of the repeated inhalations of poisonous matter.

I enquired whether there was no help for this state of things. I know that the Municipal Commissioners are striving their best to remove or put an end to nuisances like those complained against. I trust they will excuse me if I venture to suggest a means towards that end.

The mouths of all main sewers are closed by wooden slides, which are lifted at stated periods, I believe once a week, to allow the debris collected therein to be discharged into the sea or the river according to their situation. This I conceive to be an objectionable method, inasmuch as the filth of the drains collects in the main sewers, accumulates there to a considerable extent, and by decomposition generates a large quantity of fetid gases, which are pent up in the sewer, and when the shutter is lifted, pass into the atmosphere, in a concentrated form, and convey the seeds of disease to the inhabitants that respire the polluted atmosphere. The slides must of necessity remain open for some time to clean the drain, and during the whole of that period, which may be an hour or two, the poisonous emanations are diffused in the atmosphere, and wafted to some distance. It has been the practice of late to open the sewers in the night, I know not with what object this time is chosen, for the influence of the poisonous emanations on the health of the people, and the offensive odor must be the same, whether the sewers are opened by day or by night. The opening of the sewers at night has this disadvantage, that the people are taken unawares, and cannot take the precaution of shutting the doors and windows of their houses to exclude the malodor as much as possible, and render it less distressing to them, and less injurious to their health. Whereas, if the people had timely intimation that the sewers were to be opened on such a day, and at such an hour, they would be prepared to a certain extent to meet the nuisance.

To render the effluvia from the drains less offensive I would suggest the following means. 1st, Connect a metallic tube about six inches wide at the base to the wooden shutter of the drain by means of a ball and socket joint, let the tube gradually taper towards the end, which should at least be three inches wide ; let this free extremity pass into the sea, and be placed under water ; the tube may be syphon-shaped or straight with a slight curve at its free end, and supported on wooden staves or props on its way into the sea ; the gases generated in the sewer will thus gradually at all seasons and hours of the day pass under a column of water, the sulphuretted hydrogen which is the offensive gas in the sewer will in part be absorbed by the water, which being in continual motion will be carried to some distance in the sea ; the nuisance to a very considerable extent will thus be avoided. 2ndly, adapt a funnel with tube of lead, such as is employed to pour acid in

the generating vessel in the manufacture of chlorine or Hydrochloric acid, the form of which can be seen in any scientific work on chemistry, the free extremity of the funnel tube should pass into the sewer and terminate in a gutter placed horizontally, the gutter should be pierced with small holes, the object of this arrangement is to command a shower on the introduction of any fluid into the funnel, like that from the watering carts of the roads.

A solution of sulphate of iron, chloride of iron, Condy's or Bennett's disinfecting fluids, or some other cheap substances of like nature should be made, in the proportion of one pound of the salt or disinfecting fluids to a gallon of water ; a sufficient quantity of any one of these metallic solutions, according to the contents of the sewer to be deodorized or rendered innocuous, (which can be learned by trial), should be poured into the funnel and allowed to pass into the mouth of the drain, after permitting an hour or so for the chemical action of the agent employed, the sluice or slide of the drain should be opened, for the contents to be discharged ; after allowing sufficient time for their exit, the slide should be allowed to drop and the drain closed. In lifting the slide, the tube leading under water for the exit of the gases should be disconnected, which can be easily done by means of the ball and socket joint fitting.

Of late, Carbolic acid has been employed with very considerable success to remove the offensive emanations from drains, as will be seen by the following extract from a Home paper of some months ago.

" *Disinfection of Sewage.*—A very important experiment has lately been brought to a successful result at St. Thomas's, Exeter. Last year the Board of Health of that district were indicted for nuisance arising from their sewage outfall, annoying the servants and passengers of an adjoining Railway, and were about to expend £1,200 to convey the sewage to a more distant point and discharge it into the River Exe. When just about to incur this heavy expense for so very unsatisfactory an object, the attention of the Board was called to the successful use of carbolic acid by Mr. McDougal in disinfecting the sewage of Carlisle, and after long discussions they determined upon adopting the same plan. The result is most satisfactory ; £1,200 has not been expended, but instead of it only 10½*d.* a day is spent for carbolic acid ; the sewage is rendered inoffensive, and may be, and probably will be, employed usefully without annoying any one, and pollution of the river is avoided." Our Municipal Board will do well to institute enquiry regarding this very effective agent and give it a fair trial. If they succeed by its means in removing the nuisance from the drains of Madras, they will earn the lasting gratitude of the inhabitants of this densely populated town.

METEOROLOGICAL RESULTS *from the Madras Observatory Register for the month of January* 1862.

1862.	Barometer corrected and reduced to 32° Faht.	Standard Thermometer. Observed Extremes. Maxm.	Observed Extremes. Minim.	Daily Means. Dry.	Daily Means. Wet.	Wind. Prevailing Direction.	Wind. Daily Velocity.	Depth of Rain.	General Remarks.
	Ins.	°	°	°	°		Mls.	Ins.	
1st	29·950	80·5	69·4	74·6	68·2	N.	221	.....	Overcast.
2nd	·953	82·1	71·9	73·4	68·5	N.	223	.....	Fine.
3rd	·960	78·2	69·4	72·8	70·4	N.	244	0·019	Overcast.
4th	·987	80·8	72·6	76·5	73·9	N. N. E.	207	0·51	Do. till night.
5th	·970	83·4	73·4	77·4	74·1	N. N. E.	108	.....	Light clouds, clear night.
6th	·976	82·6	70·7	76·7	73·3	E.	106	0·020	Fine; rain at 6½ A.M.
7th	·988	83·2	71·7	77·5	73·6	E. S. E.	90	.....	Cloudy. [7 A.M.
8th	·934	84·1	73·7	77·9	73·6	S. E.	130	0·051	Light clouds rain; about
9th	·914	84·1	71·2	77·5	73·9	S. S. E.	120	0·072	Cloudy; rain after 11½ P.M.
10th	·940	83·7	72·8	77·4	74·0	S. S. E.	113	0·169	Showery afternoon.
11th	·977	82·9	74·2	77·9	73·4	S. E.	119	.....	Cloudy.
12th	·980	82·6	70·1	75·6	72·0	E. S. E.	102	.....	Fine.
13th	·962	82·6	70·2	76·4	71·2	S. E.	101	.....	Fine.
14th	30·000	82·1	67·7	75·9	70·9	E. S. E.	90	.....	Do.
15th	·022	82·4	70·7	76·9	71·6	E. S. E.	109	.....	Do.
16th	·027	81·0	67·6	75·6	69·8	E. N. E.	98	.....	Nearly fine.
17th	·016	81·4	67·4	75·1	68·8	E.	110	.....	Do.
18th	·038	81·7	67·2	75·4	69·0	E. N. E.	114	.....	Light clouds.
19th	·034	81·2	67·2	75·9	69·7	E. N. E.	113	.....	Do.
20th	·022	81·9	71·9	76·5	69·6	E. N. E.	177	0·108	Do.
21st	·009	80·5	69·3	74·1	67·3	N. E.	142	.....	Do.
22nd	·028	80·9	69·7	75·1	66·9	E. N. E.	133	.....	Flying clouds.
23rd	·002	81·6	70·2	75·7	68·1	N. E.	190	.....	Do.
24th	29·992	80·6	68·7	75·7	68·1	N. E.	193	.....	Light clouds.
25th	·993	81·1	68·7	74·6	67·6	E. N. E.	167	.....	Do.
26th	·943	81·4	66·5	73·4	67·8	N. E.	119	.....	Cloudy.
27th	·868	80·9	64·6	72·2	69·4	E. N. E.	89	.....	Do.
28th	·875	81·9	66·7	74·8	71·0	E. N. E.	94	.....	Light clouds.
29th	·938	82·0	68·3	75·4	70·0	N. E.	118	.....	Fine.
30th	·950	82·5	67·7	75·5	69·7	E. N. E.	104	.....	Light clouds.
31st	·935	81·7	68·9	74·1	68·3	E. N. E.	119	.....	Do.

* The Standard Barometer and Thermometers are read at 10 A.M., 4 P.M., and 10 P.M., and the daily means are obtained by the application of hourly corrections deduced from fifteen years' observations. The cistern of the Barometer is 27 feet above the level of the sea, and the receiver of the Rain gauge is 5 feet from the ground. The wind and rain registered are for the current civil day.

Meteorological Results *from the Madras Observatory Register, for the month of February* 1862.

1862.	Barometer corrected and reduced to 32° Faht.	Standard Thermometers. Observed Extremes. Max.	Min.	Daily Means. Dry.	Wet.	Wind. Prevailing Direction.	Daily Velocity.	Depth of Rain.	General Remarks.
	Ins.	°	°	°	°		Mls.	Ins.	
1st	29·916	81·8	67·2	74·6	68·2	E. N. E.	114	.....	Light clouds, clear light.
2nd	·923	81·5	65·7	74·3	68·9	N. E.	127	.....	Hazy ; clear at night.
3rd	·911	83·1	69·4	75·7	69·6	E. N. E.	112	.....	Hazy.
4th	·900	82·2	67·5	74·7	70·4	E.	102	.....	Nearly fine.
5th	·939	82·3	66 4	76·1	70·6	E. N. E.	85	.....	Fine.
6th	·935	83·3	67·2	76·1	70·0	E. N. E.	136	.....	Nearly fine.
7th	·990	82·5	66·7	75.0	69·0	E. N. E.	124	.....	Overcast.
8th	30·006	81·9	68·3	74·8	66·8	E. N. E.	178	.....	Cloudy.
9th	·040	81·2	66·5	74·7	66·2	E. N. E.	147	.. ....	Do.
10th	·018	82·2	69·5	75·7	67·9	E. N. E.	167	.....	Cloudy.
11th	·011	82·3	66·5	75·7	69·7	N. E.	171	.....	Light Clouds.
12th	·041	83·5	75·1	78·4	72·4	E. N. E.	229	.....	Overcast.
13th	·022	81·2	76·8	76·2	71·7	N. E.	217	.....	Do.
14th	29·999	84·2	75·9	78·5	72·4	N. E.	189	.....	Cloudy.
15th	·960	83·8	72·0	77·7	70·9	N. E.	118	.....	Hazy.
16th	·959	84·2	71·2	77·3	70·8	N. E.	161	.....	Do.
17th	·943	83·7	70·1	77·0	70·4	N. N. E.	153	.. ...	Light clouds.
18th	·947	83·1	69·5	76·3	70·7	N. N. E.	140	.....	Light Haze.
19th	·968	83·0	66·7	75·9	70·5	N. N. E.	122	.....	Fine.
20th	·948	84·0	67·2	77·5	68·6	N. N. E.	105	.....	Do.
21st	·908	85·0	65·6	75·4	67·7	Variable.	93	.....	Do.
22nd	·911	84·7	65·6	74·9	69·4	S. E.	88	.....	Do.
23rd	·915	84·2	64·9	74·9	69·5	S. E.	87	.....	Do.
24th	·930	84·4	65·9	74·6	70·3	S. E.	82	.....	Do.
25th	·930	83·9	66·9	76·0	70·3	S. E.	100	.....	Light Haze.
26th	·874	83·5	65·9	73·7	67·7	E. S. E.	81	.....	Fine.
27th	·842	88·3	63·5	76·8	67·3	S. S. E.	108	.....	Light Haze.
28th	·883	87·7	70·7	79·4	75·1	S. S. E.	143	.....	Fine.

The Standard Barometer and Thermometers are read at 10 A.M., 4 P.M., and 10 P.M., and the daily means are obtained by the application of hourly corrections deduced from twenty years' observations. The cistern of the Barometer is 27 feet above the level of the sea, and the receiver of the Rain gauge is 5 feet from the ground. The wind and rain registered are for the current civil day.

Meteorological Results *from the Madras Observatory Register for the month of March* 1862.

1862.	Barometer corrected and reduced to 32° Faht.	Standard Thermometers. Observed Extremes. Maxm.	Minim.	Daily means. Dry.	Wet.	Wind. Prevailing Direction.	Daily Velocity.	Depth of Rain.	General Remarks.
	Ins.	°	°	°	°		Mls.	Ins.	
1st	29·896	87·1	71·7	79·4	74·8	S. S. E.	159	.....	Fine.
2nd	·886	88·1	73·9	79·6	73·5	S.	164	.....	Fine.
3rd	·908	88·8	73·6	80·5	74·5	S.	182	.....	Light clouds.
4th	·963	86·6	72·0	79·2	72·7	S. S. E.	171	.....	Fine with passing clouds.
5th	·930	87·1	71·3	79·1	72·6	S. S. E.	160	.....	Fine.
6th	·934	86·3	71·3	78·5	71·8	S. S. E.	138	.....	Fine.
7th	·975	86·5	71·5	79·1	72·6	S. E.	118	.....	Flying clouds.
8th	·986	86·5	69·7	78·4	71·1	E. S. E.	104	.....	Light clouds.
9th	·947	86·3	69·9	78·8	71·6	E. S. E.	128	.....	Fine.
10th	·894	87·2	72·0	80·2	74·9	S. E.	155	.....	Fine.
11th	·888	89·3	74·0	81·5	75·7	S. S. E.	156	.....	Light clouds.
12th	·940	88·9	74·3	80·8	75·3	S. E.	148	.....	Fine.
13th	·966	88·3	73·4	80·8	74·4	E. S. E.	100	.....	Frequent clouds.
14th	·995	88·4	74·3	80·4	73·8	E.	131	.....	Do.
15th	30·007	86·9	71·8	79·4	71·2	E.	139	.....	Light clouds.
16th	29·979	87·2	71·8	78·1	71·0	E. N. E.	109	.....	Fine.
17th	·938	86·6	69·9	77·2	72·6	E. N. E.	101	.....	Light clouds.
18th	·912	87·5	69·9	78·6	73·5	E.	92	.....	Cloudy.
19th	·938	87·3	72·6	79·8	73·4	E. N. E.	104	.....	Do.
20th	·909	88·1	71·5	78·7	72·4	E. N. E.	106	.....	Fine.
21st	·854	91·0	71·4	79·0	70·8	E.	74	.....	Do.
22nd	·836	90·9	69·5	78·7	69·1	E.	101	.....	Light haze.
23rd	·835	91·1	66·2	78·6	68·9	E.	101	.....	Fine.
24th	·857	90·0	68·8	80·9	73·2	E. N. E.	100	.....	Do.
25th	·886	90·7	73·3	81·3	75·1	N. E.	131	.....	Light clouds.
26th	·870	91·3	77·1	81·6	75·3	N.	182	.....	Flying clouds.
27th	·850	89·6	75·8	82·2	75·6	E.	100	.....	Fine, with passing.
28th	·883	89·8	78·4	82·5	77·3	S. S. E.	175	.....	Flying clouds.
29th	·917	89·4	77·8	81·4	76·6	S. E.	159	0 013	Do.
30th	·867	91·4	75·1	83·0	75·8	S. S. E.	170	.....	Fine.
31st	·886	91·9	77·4	85·0	76·7	S. S. E.	190	.....	Frequently clouded.

The Standard Barometer and Thermometers are read at 10 A. M., 4 P. M., and 10 P. M., and the daily means are obtained by the application of hourly corrections deduced from fifteen years' observations. The cistern of the Barometer is 27 feet above the level of the sea, and the receiver of the Rain gauge is 5 feet from the ground. The wind and rain registered are for the current civil day.

PART IV.

MEDICAL INTELLIGENCE.

GOVERNMENT ORDER ON THE ANNUAL REPORT OF THE MADRAS MEDICAL COLLEGE FOR 1860-61.

In our third Volume, page 207, we inserted the Annual Report of the Principal of the College, and we now subjoin the order of Government thereon, dated 4th February 1862, No. 34.

ORDER.

The Director of Public Instruction submits, with his remarks, the Annual Report of the Medical College for the year 1860-61, to which is appended the Report of the Committee who conducted the Annual Examination.

2. In each of these Reports the progress of the students, and their general conduct throughout the year, is mentioned in very favorable terms. The change in the system of instruction, which was proposed in the Report of the Director of Public Instruction for 1859-60, and has since been introduced, is found to answer very satisfactorily, and the marked advancement of those students who passed the examination for Assistant Apothecaries, shews plainly the great advantage of substituting, as far as possible, practical for oral instruction.

3. The Professorship of Medical Jurisprudence which had been in abeyance for some time, was abolished toward the close of the year, and the Government notice with satisfaction the favorable mention made by the Principal of the College of the zeal and ability evinced by Dr. Urquhart during his occupancy of the chair.

The various branches of this subject have now been distributed amongst the other Professors who will, in future, treat them as integral portions of their own lectures. It is stated that the abolition of this chair does not incapacitate Students for presenting themselves for examination before any of the Examining Boards of Great Britain or Ireland.

The Principal of the Medical College will be requested, with reference to his remarks at the commencement of paragraph 5 of his Report, to address Government on the subject when he considers the time has arrived when it would be advisable to re-establish the Professorship of Medical Jurisprudence ; he will

especially notice the practicability of making the Professiorship ; as far as possible, self-supporting by the remuneration of the Professor by fees paid by the Students.

4. The Government trust that the lately enacted Rule of the Royal College of the Surgeons which prohibits the receipt from the same lecturers of more than one Certificate of progress in Medical Science, will be relaxed so far as to meet the arrangements now existing in the Madras College.

5. The institution of a practical class of Pharmacy, for the instruction of students in Compounding, and making up of prescriptions, in future to form one of the establishment classes of the College, is approved.

6. The alterations in the organization of the College, proposed in the last Report, were carried into effect at the commencement of last Session, and the College is now divided into three Departments, in the 1st, or senior, of which Candidates are instructed for a Degree in Medicine, or for the post of Sub-Assistant Surgeon ; in the 2nd, an education fitting Students for the appointment of Assistant Apothecary is imparted, and in the 3rd, or Junior Department, Candidates are trained for the duties of Hospital Assistant. The Primary Medical School which was transferred to the College at the commencement of the Session, is, it is observed, now included in the Junior Department.

7. Admission to all the Departments is obtained by Competitive Examination, and Candidates for the Senior Department are further expected to pass the Matriculation Examination of the Madras University.

(True Extract.)

(Signed) T. PYCROFT,

Chief Secretary.

THE NEW SYDENHAM SOCIETY.

We are glad to be in a position to state that the New Sydenham Society is making a very satisfactory progress. The number of members now enrolled on the books is nearly four thousand. Should this number be actually reached and maintained, the Council calculates that, in addition to a Fasciculus of the Atlas of Skin Diseases, and the Year-Book, three other printed volumes may be annually supplied for a single subscription of one guinea. With respect to the Atlas, we can but give utterance to the opinion which we have heard expressed by every one who has seen the plates already issued, viz., that they are beautifully executed representations of the affections which they profess to depict.

We consider that each fasciculus of three plates is by itself fully equal in value to the amount of annual subscription.

In our present number some remarks will be found upon the general character of the Year-books which have already been issued. As an appendix to these observations we think it but right to put our readers in possession of what the Council says with reference to this subject. In the last Report (July, 1861) we find the following:—

"With regard to the Year-book, the Council has the satisfaction of knowing that the general plan of their first volume has met the approbation of many of those for whose use the work is designed. That some disappointment should have been felt at first, on the part of those who have not had opportunities for fairly estimating the details involved in such a work, was quite to be expected. To produce a work which should be a complete and full *resume* of a year's medical literature, which should save its readers the need of reference to the original works and papers, is a task which, if it were practicable, would require more than the entire income of the Society. It is simply impossible to condense beyond a certain point, and whoever has glanced at the titles of the almost numberless contributions which every year supplies, must be convinced that to give adequate abstracts of all would necessitate at least five such volumes as that to which, by financial considerations, the Society is restricted. Well aware that the attainment of any thing like completeness, is not to be hoped for, the Council still confidently trusts that each succeeding Year-book will (should the Society approve of its continuance) be found to be an improvement on its predecessors; and it feels convinced that the volumes, as they accumulate, will supply a want which has been greatly felt by the English Medical reader."

It will be seen, from the above, that the Council acknowledges it is impossible to overcome one of the most strongly advanced objections to the book, viz., that it does not save its readers the need of reference to the original works and papers. It must be, in a great measure, more of a Bibliographical Dictionary than an "*Abstract.*" Further we notice that the Council shows every desire to be guided by the opinions of the members at large. The words "should the Society approve of its continuance," shew this; and this deference to the views of the members, appears to us to augur favourably for the long-continued existence of the Society. Further, the Council expresses its confidence that the Year-books will annually improve and increase in value. We are authorized to state that Mr. Chipperfield, the Honorary Local Secretary for Madras, will be happy to

be the means of communicating to the Council the views of the Madras Presidency subscribers as to the desirableness of continuing the Year-book.

The other works issued by the Society are all of first-class excellence and practical character. The volumes are uniform in appearance, and beautifully "got-up;" many of them are freely illustrated. The second reprint (third edition) of the five volumes for the first year (1859) is now ready, or nearly ready, for delivery; and we believe these works will soon be in the hands of those subscribers who have not yet been supplied. We can assure our readers that the Annals of Medical Literature do not afford instances of works of such excellence having been previously procurable at such a trifling outlay.

We believe that a few copies of the works for 1860, are still on hand and available for issue to new subscribers. These comprise, Dr. Bright's Memoirs on Abdominal Tumours and Intumescence; Dr. Frerich's Clinical Account of Diseases of the Liver, Vol. I; The Year-book of Medicine and Surgery for 1859; and the First Fasciculus (three plates) of the folio Atlas of Portraits of Skin Diseases. We recommend our readers to subscribe for 1860, even should they decline doing so for the first year (1859), as it would be a pity not to have the "Atlas" complete. As every additional subscription must have the effect of aiding in the extension of the operations of the Society, we trust that the Honorary Local Secretary for Madras will speedily receive a considerable addition to his present list of Subscribers.

ORDERS OF GOVERNMENT REGARDING PRIVILEGE AND TEMPORARY LEAVE.

MILITARY DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following letters:—

From the Adjutant General of the Army, Fort St. George, 3rd January 1862, *No.* 5; *to the Secretary to Government Military Department.*

I have the honor, by order of the Commander-in-Chief, to solicit the attention of Government to the notification published under the signature of the Controller of Military Finance at page 919 of the *Gazette* for 1861, laying down that privilege leave given to

officers by the Heads of Departments must be for either sixty or thirty consecutive days, and not for broken periods.

2. His Excellency desires me to observe that G. O. C. C. No. 4½, dated 17th January 1856, page $\frac{1}{33}$, which was published with the sanction of Government, does not bear this interpretation : nor has it ever been understood at Army Head Quarters, that such are the terms upon which privilege leave is obtainable. The G. O. C. C. above quoted applies specifically it is true to "Officers under the Commander-in-Chief's orders," but it is believed that the principle of that Regulation regulates grants of privilege leave to all officers except those in Civil employ, in fact, the paragraph of the Pay Code quoted in the Controller's notification, embraces all, viz., Regimental, Medical, and Staff Officers.

3. Should his Excellency the Governor in Council be of opinion that Lieutenant-Colonel McGoun has put an erroneous construction upon the question of privilege leave, I am to request that the necessary orders may be issued for the notification to be cancelled or modified as may be requisite.

4. The Principal Inspector General of the Medical Department has submitted a representation (herewith enclosed) on this subject, wherein he notices how much Medical Officers would be inconvenienced by their privilege leave being restricted in the manner required by the Controller's notification.

From the Principal Inspector General Medical Department, Fort Saint George, 12th December 1861, *No.* 2178 *; to the Adjutant General of the Army.*

With reference to the Notification in the *Fort Saint George Gazette* by the Controller of Military Finance, dated 4th Instant, calling the attention of Officers and the Heads of Military Departments, who are authorized to grant privilege leave to the terms of the Regulation* under which such leave is admissable ; whereby it is laid down, it would appear that, whether for 30 or 60 days, the leave of absence must be for consecutive days, and not for broken periods, I have the honor to request you will solicit the attention of the Provincial Commander-in-Chief to the great hardship which this interpretation (it would undoubtedly seem the right one according to the literal terms of the Order) will inflict on the Officers of the Army, especially those of my Department.

* Pay Code, page 13, para. 63.

2. It is an indubitable fact that, though the terms of the Order are so precise, leave in broken periods has heretofore been constantly granted and availed of. It is manifest how great a convenience it is to Officers that it should be so ; and to those of

the Medical Department more than to any others, whose professional labors are of a nature requiring relaxation and repose occasionally, and at times when their duties permit of their absence, or when, on the other hand, the employments of a Medical friend will allow of his taking his duties during his absence. I need not dwell on this point, for it must be apparent, that restriction according to the literal terms of the Order, would be most vexatious. On the other hand, there seems not the least reason to suppose but the Government would desire that their servants' comfort and convenience should be consulted, so that in the words of the Order "Approved arrangements" are made for the performance of the duties of the absent Officer, and the State is put to no inconvenience or additional expense.

3. I earnestly beg, then, that the Commander-in-Chief will be pleased to recommend to Government, that such a modification of the order regarding privilege leave may be made, as shall permit Officers to avail themselves of the time allowed annually, for any periods which suit their convenience; and I would suggest that the Rule be made retrospective, to meet such cases* as inadvertently, have in opposition to the literal terms of the present order.

Vide G. O. C. C., No. 4½ of 1856, paragraph 4. Medical Code, Section VIII, paragraph 13.

* Surgeon Major J. Shaw, for instance, who has been granted thirty-four days leave under what appears to be an erroneous view of the Rules in question.

Referred for the consideration and report of the Controller of Military Finance 4th January 1862.

From the Controller of Military Finance, Fort St. George, 18th January 1862, C; to the Secretary to Government, Military Department.

In returning the letter from the Adjutant General of the Army, with its accompaniment, referred for my report on the 4th January, 1862, I have the honor to observe, that the notification alluded to, simply called attention to the obvious interpretation of the existing Rule authorizing the grant of privilege leave.

No. 5, 3rd January 1862, soliciting attention to notification by Controller of Military Finance at page 919 of *Gazette*, for 1861, calling attention to the Rule authorizing the grant of privilege leave, and notifying that it must be for sixty or thirty consecutive days and not broken periods.

Paragraph 63, pages 12 and 13, Pay Code.

2. The Adjutant General states that the G. O. C. C., No. 4½ of 17th January 1856, published under the authority of Government, will not bear the interpretation given in the notification : this is quite correct ; the Rule embodied in the G. O. C. C., authorized thirty days' privilege leave in the aggregate in six months ; but the present Regulation regarding privilege leave was promulgated subsequently in G. O. G. G., 27th March 1857, No. 466, (Madras G. O. G., 9th April 1857, No. 101,) and it appears to me that the introduction of the word "consecutively" was intended to restrict the grant of privilege leave to two periods in the year, and this principle is identical with that of the Regulation under which privilege leave is allowed to Covenanted Civil Servants.

Page ½

Paragraphs 114 and 115, Chap. II, page 18, Civil Auditor's Manual.

3. In G. O. G., 24th March 1857, No. 77, Government were pleased to authorize Heads of Departments to grant leave under the same Rules as established for the guidance of Officers Commanding Divisions and Stations (in the G. O. C. C., 17th January 1856, it is presumed) this concession allowed the grant of twenty days leave in six months in periods not exceeding ten days in the Calendar month (between musters) in addition to privilege leave, and paragraph 62, page 12 of the Pay Code, is in accordance with this order.

4. I submit that the Rules above quoted are sufficiently liberal, and that there is no ground for complaint on the part of Medical Officers in Military employ who benefit by the Regulations equally with Military Officers ; I trust therefore that Government will approve of the Notification under reference, which I felt it my duty to issue to guard against losses which might accrue from a misapprehension of the terms of the order in question ; it will be observed that it was not a mere Departmental Regulation which was referred to, but an order of the Governor General of India in Council which had been issued under the sanction of the late Court of Directors, and in terms which did not appear to me to admit of misapprehension ; leave for thirty days consecutively cannot mean short leaves at broken periods : it is not for me to determine whether the order should be repeated, or modified, to suit the convenience of Officers ; that is a question for the Government to consider, and I trust under these circumstances that the Notification, which it was my duty to issue to correct an obvious misapprehension, will meet with approval.

ORDER *No.* 470, *7th February*, 1862.

It appears to his Excellency the Governor in Council that G. O. G. G., No. 466 of 1857, is too clear to admit of any other interpretation than that put upon it by the Controller of Military

Finance in his report above recorded, which will be communicated to the Commander-in-Chief.

2. Government observe, that the Regulations sufficiently provide for Military and Medical Officers not in Civil employ, obtaining "temporary leave for short periods." Vide paragraph 62, page 12, of the Pay Code.

(True Extract.)

(Signed) H. MARSHALL, Colonel,
Secretary to Government.

ORDERS REGARDING DRESS OF MILITARY AND MEDICAL OFFICERS.

G. O. C. C., dated January 13th, 1860.

(No. 6.)—The Commander-in-Chief desires to call attention to the practice of Officers appearing in places of public resort in plain clothes. He directs this to be discontinued, and proper undress uniform to be worn.

Plain clothes may be worn in the early morning, or when Officers are riding into the country or proceeding on any sports or games.

Officers are invariably to wear their swords when going to Church and when paying official visits. On other occasions off duty, the sword need not be worn.

ORDERS AS TO DRESS OF MEDICAL OFFICERS OF MADRAS ARMY.

In connection with the foregoing orders we have to record the following instruction regarding Officers in this Presidency.

MILITARY DEPARTMENT.

PROCEEDINGS OF THE MADRAS GOVERNMENT.

Read the following:

From the Secretary to the Government of India, Military Department, Fort William, 24th February, 1862, *No.* 769; *to the Secretary to Government, Military Department, Fort St. George.*

WITH reference to your letter No. 4491 of the 7th December 1861, I am directed to acquaint you for the information of the Government of Fort St. George, that the correspondence has been

forwarded for the orders of the Right Honorable the Secretary of State, with an expression of the concurrence of the Supreme Government, in the recommendation of the Government of Fort St. George, that Medical Officers of the Indian Service in Civil or Staff employ should provide themselves with the uniform laid down for the Medical Staff of the British Army.

ORDER *No.* 904, 11*th March*, 1862.

Communicated to the Commander-in Chief and Principal Inspector General Medical Department with reference to Proceedings of Government, No. 4490, dated 7th December 1861.

(True Extract.)

(Signed) H. MARSHALL, Colonel,

Secretary to Government.

DRESS OF MEDICAL OFFICERS OF THE QUEEN'S ARMY.

For the information of Medical Officers of the Local Army, we subjoin the rules for dress now made applicable to them.

DRESS OF ARMY MEDICAL STAFF OFFICERS.

Coat.—Tunic, scarlet, single-breasted, with black velvet collar, cuffs, and sleeve flaps. The collar rounded off in front, cuff ten and a half inches round, two inches and three-quarter deep. Slashed flap on the sleeve six inches long and two inches and a quarter wide, with three loops of half-inch lace and uniform buttons. Eight buttons down the front. The skirt 10½ inches deep for an Officer of five feet nine inches in height, with a variation of half an inch longer or shorter for every inch of difference in the height of the wearer. Scarlet flap on the skirt behind, ten inches deep, two buttons on flap and one on waist, with three loops of half-inch lace. The coat, collar, cuffs, and flaps edged with white cloth a quarter of an inch broad, and the skirts lined with white.

Director-General, Army Medical Department, as Major-General. Collar, cuffs, sleeve slashes, and skirt flaps, to be laced with inch lace (Staff pattern) as directed for Major-General.

Distinctions of Rank according to the relative ranks in the Army, viz. :—

Inspector-General of Hospitals, as Brigadier-General, after three years' service as Major-General. The collar laced round top and bottom with half-inch lace ; a crown and star embroidered in silver at each end.

Deputy Inspector-General of Hospitals, as Lieutenant-Colonel,

after five years' service as Colonel, the same lace, with a crown, or crown and star, at end of the collar.

Surgeon-Major, as Lieutenant-Colonel, the same lace, with a crown at each end of collar.

Staff-Surgeon, as Major, the collar laced round top and bottom with half-inch lace, and star in silver at each end.

Assistant Staff-Surgeon, as Lieutenant, the same collar, with a crown at each end, after six years' service as Captain.

The Officers ranking with Field Officers to have two rows of half-inch lace round the top of the cuff, an edging of the same on the sleeve and skirt flaps, and down the edge of the skirt behind.

The Officers under that rank to have one row of lace round the cuff, none on the skirt, and the loops only on the skirt flap and sleeve flap.

Lace.—Gold, two-vellum pattern, half-inch width.

Buttons.—Gilt, with the crown and letters V. R., with the words "Medical Staff," within a star raised thereon.

Hat.—Cocked, plain; the fan, or back part, nine inches, the front seven inches and a half, each corner five inches.

Loop.—Scale, with regulation button, and black silk cockade.

Tassels.—Gold bullion.

Feather.—Black cock's tail, drooping from a feathered stem three inches in length.

Stock.—Black silk.

Trowsers, Dress.—Blue cloth, with gold lace two and a half inches wide for Director General, and an inch and three-quarters wide for Officers below that rank, down outward seam.

Boots.—Wellington.

Spurs.—Screw, yellow metal, as for Staff Officers, for those Medical Officers who are allowed forage for a horse.

Sword.—The same as for Officers of Infantry.

Scabbard.—Brass for those having the rank of Field Officer, black leather, with gold mountings, for Officers under that rank.

Sword-Knot.—Crimson and gold, with acorn tassel.

Sword-Belt.—Black morocco, with three rows of gold embroidery for Director-General; two rows for Inspector and Deputy-Inspector General of Hospitals; black leather, with slings and gilt hook for all other ranks. To be worn over the coat.

Plate.—A round gilt clasp, with V. R. surmounted by a crown, in silver, upon the centre-piece, and "Medical Staff" with a laurel branch, also in silver, on the outer circle.

Shoulder-Belt.—Black morocco, with three rows of gold embroi-

dery for Director-General, with two rows for Inspector and Deputy-Inspector-General of Hospitals ; and black patent leather for all other ranks ; the whole with a small case of Surgical instruments, according to pattern.

Frock-Coat.—Blue, double-breasted, with stand-up collar rounded off in front, cuffs, and lappels all of blue cloth. Cuff ten and a half inches round, and two inches and three-quarter deep, slashed flap on sleeve five inches and a quarter long, one inch and a half wide, with three small uniform buttons. Two rows of uniform buttons down the front, nine in each row, at equal distances, the distance between the rows eight inches at top, and four inches at bottom ; flaps on skirts behind ten inches deep, with two buttons on flap and one on waist. The skirt lined with black, and seventeen inches deep for an Officer five feet nine inches in height, with a variation of half an inch longer or shorter for each inch of difference in the height of the wearer. The Officers ranking with Field Officers to have the badge of their rank (as crown or star) embroidered in gold at each end of the collar. The collars of other Officers to be plain.

Trowsers, Undress.—Blue cloth, with a scarlet stripe two and a half inches wide down the outward seam for Director-General, one and three quarter inches for Inspector and Deputy-Inspector General of Hospitals, and scarlet welt for all other ranks.

Boots.—Wellington or ankle.

Forage Cap.—Director-General as for Major General, except that the band is to be of lace, of the Staff pattern. The same for Inspector-General and Deputy-Inspectors of Hospital, gold button and trimming on the top. For all other ranks, blue cloth, with black leather peak and chin strap ; black silk oak-leaf band, with V. R., surmounted by a crown, embroidered in gold on the front, and with black-button and trimming.

Great-Coat.—Of Infantry pattern, blue cloth, lined with scarlet, with uniform buttons.

Officers of the Medical Department, serving in Africa, are to wear the shell jacket as prescribed for Officers of Infantry.

Horse Furniture.—Bridle, as Officers of Infantry, with brown leather front and rosettes. Bit, without bosses. Saddle-cloth for Officers who are allowed forage for a horse, blue cloth, same dimensions as for Infantry Officers, with the lace of black silk, oak leaf pattern one inch wide, two rows of lace for Director-General, and Inspectors and Deputy Inspectors-General. Badges in black silk. Holsters, covered with black leather. Girths, blue. Saddle, hunting. As Surgeon, no badges.

(Signed)
B. Hawes.

War Office,
18*th November* 1859.

REGULATIONS REGARDING THE RECOVERY OF TABLE MONEY.

G. O. G. G., dated February 11th, 1862.

No. 151 of 1862.—With the view of ensuring the more speedy recovery of that portion of the table money which, under existing Regulations, is recoverable from Officers proceeding by sea, at the public expense, from any Indian Port to another Port in India, His Excellency the Governor General in Council is pleased to direct that the Officer granting the free passage shall be required, when notifying the same to the applicant, to warn him in writing that Certificates of the dates of his embarkation and disembarkation signed by the Commander of the Vessel and countersigned by the Officers of the Marine or Quarter Master General's Department, as the case may be, at both Ports if possible, but at all events at the Port of disembarkation, must be appended to the Bill in which his pay is next drawn. The Officer granting the free passage will also give notice of the same to the Controller of Military Finance for communication to the proper Pay Master, who will be responsible for recovering whatever portion of the table money may be debitable to the Officer from the period that he was messed on board, and who will disallow his pay and allowances until the Certificates abovementioned are presented.

APPLICATIONS FOR GENERAL LEAVE OF ABSENCE.

NOTIFICATION.

Fort St. George, January 14th, 1862.

Heads of Departments are directed to follow the course prescribed in the notification of the 23rd March 1855, No. 396, in respect to applications for leave of absence from the officers subordinate to them, excepting those for privilege leave specially provided for in the order in the Financial Department, dated 17th October last, No. 506 ; and to forward in every case the application in original to the Civil Paymaster, or if the applicant be a Chaplain, or Military or Medical Officer in Civil employ, to the Controller of Military Finance, who will submit the application to Government with a report as to the eligibility or otherwise of the applicant to the leave solicited.

2. Under this arrangement no separate letter to Government

will be necessary. Any opinion or recommendation of the Heads of Departments should be superscribed on the application itself. On the leave being granted, it will be notified in the *Fort St. George Gazette.* If the applicant be declared ineligible to the leave, or the Government decline to grant it, a copy of the order of Government will be furnished to the Head of the Department for communication to the applicant.

3. Any application for leave of absence that may hereafter be transmitted direct to Government will be returned to the sender.

By Order,

(Signed) T. PYCROFT, *Chief Secretary.*

APPENDIX.

MEDICAL DIRECTORY FOR SOUTHERN INDIA.

For the Half Year commencing 1st April, 1862.

CIVIL DEPARTMENT.

I.

MADRAS MEDICAL COLLEGE.

PRINCIPAL.

JAMES SHAW, Esq., F.R.C.S.

PROFESSORS.

Arranged in order of their permanent appointment.

J. SHAW, Esq., F.R.C.S.....*Professor of Midwifery and Diseases of the Eye.*
J. E. MAYER, Esq.....*Professor of Chemistry.*
A. BLACKLOCK, Esq.....*Professor of Medicine and Clinical Medicine.*
H. B. MONTGOMERY, Esq., A.B., M.D., F.R.C.S.I., &c. } *Professor of Botany, Materia Medica, and Therapeutics.*
J. L. PAUL, Esq., A.M, M.D.....*Professor of Surgery and Clinical Surgery.*
W. N. CHIPPERFIELD, Esq.....*Professor of Anatomy and Physiology.*

ASSISTANTS.

Mr. G. NORTON.....*In Chemical Department.*
Mr. R. WILKINS.....*Demonstrator of Anatomy and Curator of the Museum.*
Mr. J. J. WOOD.....*In Botany and Materia Medica.*

Mr. J. JOBARD, *Librarian.*

M. JUGGERNAD, *Native Assistant.*

MR. WATKINS, *English Teacher.*

II.

THE UNIVERSITY OF MADRAS.

THE FACULTY OF MEDICINE.

President.

J. SHAW, Esq., F.R.C.S.

Members.

A. J. ARBUTHNOT, Esq.
T. PYCROFT, Esq.
Col. C. A. BROWNE.
J. E. MAYER, Esq.
J. SANDERSON, Esq.
W. J. VAN-SOMEREN, Esq., M.D.
SAMUEL JESUDASEN PILLAY.
W. MACLEAN, Esq., M.D. *Eur. Furlough.*
G. W. FLYNN, Esq., M.D.

III.

CORONER OF MADRAS.

J. URQUHART, Esq., M.D.

DEPUTY CORONER OF MADRAS.

R. S. MAIR, Esq., M.D.

IV.

PORT AND MARINE SURGEON.

H. B. MONTGOMERY, Esq., A.B., M.D., F.R.C.S.I., &c.

V.

CHEMICAL EXAMINER TO GOVERNMENT.

A. J. SCOTT, Esq., M.D., *Eur. S. C.*
J. E. MAYER, Esq., *Acting.*

VI.

EMIGRATION SURGEON.

W. J. VAN-SOMEREN, Esq., M.D.

VII.

MADRAS MINT, ASSAY DEPARTMENT.

G. J. SHAW, Esq., M.D., *Assay Master.*
A. J. SCOTT, Esq., M.D., *Asst. Assay Master, Eur. S. C.*
W. AITKEN, M.D., *Acting do.*

VIII.

CONSULTING PHYSICIAN MADRAS RAILWAY COMPANY.

J. SANDERSON, Esq.

IX.

SUPERINTENDENT OF VACCINATION DEPÔT.

J. SANDERSON, Esq.

X.

THE MEDICAL REFEREES OF LIFE ASSURANCE SOCIETIES.

JAMES SHAW, Esq.....*The Madras Equitable.*
JAMES SHAW, Esq.....*Church of England.*
W. J. VAN-SOMEREN, Esq., M.D.....*The Albert, Medical, and General.*
J. SANDERSON, Esq.....*Universal.*
JAMES SHAW, Esq.....*Colonial.*

XI.

MEDICAL HOSPITALS AND DISPENSARIES, MADRAS.

General Hospital, Black Town Esplanade.	A. BLACKLOCK, Esq., *Physician.* J. L. PAUL, Esq., M.D., *Surgeon.* Mr. A. DOUTRE, *Apothecary.*
Eye Infirmary, Poonamallee Road.	JAMES SHAW, Esq., *Superintendent.* Mr. T. B. TURNBULL, *Apothecary.*
Civil Dispensary, General Hospital Street.	J. L. PAUL, Esq., A. M., D. M., *Surgn.* Mr. G. FONSWORTH, *Apothecary.*
Native Infirmary and Idiot Asylum, Attapalium Road.	W. J. VAN-SOMEREN, Esq., M.D., *Surg.* Mr. ABEL GROVE, *Apothecary.*
Leper Hospital, Attapalium Road.	W. J. VAN-SOMEREN, Esq., M.D., *Surg.* Mr. J. A. EVERS, *Apothecary.*
Triplicane Dispensary, Royapettah.	H. W. PORTEOUS, Esq., *Surgeon.* Mr. G. A. TRUTWEIN, *Apothecary.*
Fort Saint George Dispensary, St. Thomé Street, Fort.	H. B. MONTGOMERY, Esq., M.D., *Surg.* Mr. DEWSNAP, *Senior Apothecary.*
Chintadrepettah Dispensary, Chintadrepettah.	J. SANDERSON, Esq., *Surg.* Mr. J. THOMAS, *Apothecary.*
Port and Marine Dispensary, Custom House.	H. B. MONTGOMERY, Esq., M.D., *Surg.* Mr. STIRLING, *Apothecary.*
Lunatic Asylum, Kilpauk.	S. MASON, Esq., *Resident Medl. Offr.* Mr. T. R. PECK, *Apothecary.*
Lying-in-Hospital and Dispensary, Egmore.	W. AITKIN, Esq., M.D., *Supt.* Mr. J. GORMAN, *Apothecary.*
Vepery Dispensary, Shoolay.	J. W. MUDGE, Esq., M.D., *Surgeon.* Mr. R. F. STEPHENSON, *Apothecary.*
Free Church of Scotland Charitable Institution.	————————, *Surgeon.* ————————, *Apothecary.*
Black Town Dispensary, Saulay Street.	SAMUEL JESUDASEN Pillay, *Surgeon.* ————, *Apothecary.*

XII.

MEDICAL OFFICERS OF PUBLIC INSTITUTIONS.

Military Male Orphan Asylum.....C. M. DUFF, Esq., M. D.
Do. Female do. do.....
Powder Mills.....
Gun Carriage Manufactory.....
J. W. MUDGE, Esq., M.D.

Civil Male and Female Orphan Asylums, H. M. Jail.	J. W. van-Someren, Esq., M. D.
Penitentiary	Wm. Aitken, Esq., M.D. Mr. Jones, *Apothecary.*

XIII.

PHYSICIANS AND SURGEONS IN MADRAS.

Aitkin, Wm., Esq., M.D. ..... *Poonamallee Road.*
Andy, Pulney, Esq., M.D. ..... *Black Town.*
Balfour, E. G., Esq. ..... *Royal Hotel.*
Blacklock, A., Esq. ..... *General Hospital.*
Chipperfield, W. N., Esq. ..... *Mount Road.*
Cole, R., Esq. ..... *Mount Road.*
Conran, George, Esq., M.D. ..... *Pursewalkum.*
Cornish, W. R., Esq. ..... *Mount Road.*
Duff, C. M., Esq., M.D. ..... *Nungumbaukum.*
Flynn, G. W., Esq., M.D. ..... *Mount Road.*
Mair, R. S., Esq., M.D. ..... *Poonamallee Road.*
Mayer, J. E., Esq. ..... *The Luz.*
McKenna, J. E., Esq., M.D. ..... *Commander-in-Chief's Road.*
Montgomery, H. B., Esq., M.D. ..... *Fort Saint George.*
Mudge, J. W., Esq., M.D. ..... *Pursewalkum.*
Paul, J. L., Esq., M.D. ..... *General Hospital.*
Porteous, H. W., Esq. ..... *Mowbray Road.*
Sanderson, J., Esq. ..... *Elphinstone Hotel.*
Scott, A. J., Esq., M.D. ..... Europe s. c.
Shaw, G. J., Esq., M.D. ..... *Shawfield, Egmore.*
Shaw, J., Esq. ..... *Eye Infirmary, Poonamallee Road.*
Urquhart, J., Esq., M.D. ..... *Poonamallee Road.*
van-Someren, W. J., Esq., M.D. ..... *Royapooram.*

XIV.

DENTISTS.

Clarke, S. G., Esq., ... *Pantheon Road.*
Groves, J. P., Esq., ...

XV.

CHEMISTS AND DRUGGISTS.

Barrie and Co., ... *Vepery Dispensary, Poonamallee Road.*
Do. (Branch) ..... 16, *Mount Road.*
DeBeaux and Co., ... *Esplanade.*
Flynn, G. W. and Co., ... 135, *Mount Road, Presidency Dispensary (late Government Dispensary.)*
Lee and Co., ... 10, *Popham's Broadway.*
LeFebour ..... *Do.* *do.*
Scott and Co. ..... *Do.* *do.*
Secluna and Co., ... *Vepery.*

MILITARY DEPARTMENT.

In the following pages the Titles of the Medical Officers of the Madras Army are thus indicated.

1 F.R.C.S., England. ...	5 L.R.C.S., Edinburgh.	9 F.R.C.P.	13 Fac. Phy. Sur. Glas.
2 F.R.C.S., Edinburgh. ...	6 L.R.C.S., Ireland.	10 M.R.C.P.	14 F.G.S.
3 F.R.C.S., Ireland. ...	7 M.D.	11 L.A.C.	15 Grad. Med. and Surg. Madras Medical College.
4 M.R.C.S., London. ...	8 M.B.	12 L.M.	

† A.B. †† A.M. ††† F.L.S.

* prefixed to an Officer's name indicates the possession of a Medal for War Service.

Nominal List of Medical Officers of Her Majesy's Indian Forces on the Establishment under the Presidency of Fort St. George, showing their Professional Titles, dates of Rank, and how employed.

No.	Names.	Professional Titles.	Date of Rank as Asst. Surgeon.	Date of Rank as Surgeon.	Date of Rank as Inspector General.	Nominal Service to 31st Mar. 1862. Y.	M.	D.	Corps or Department.	Station.
Inspectors of General Hospitals.										
1	Robert Cole ...	4	8th May 1827	24th Sept. 1840	28th April 1861	34	10	23	Prin. Insp. Genl. Med. Dept. Hony. Surgeon to Her Majesty.	Madras.
	*Duncan Macpherson ...	7	18th do 1836	11th Dec. 1852	8th Jan. 1858	25	10	13	Hony. Physician to Her Majesty.	
Deputy Inspectors General of Hospitals.										
	*John Templeman Maule..	5	14th May 1825	25th May 1838	8th Feb. 1851	36	10	17	Nagpore Force..	Kamptee.
	Henry Gibbon Graham ...	.....	3rd June	2nd Feb. 1841	18th June 1855	34	9	27	Pegu Division..	Rangoon.
5	Frederick Cooper ...	4-11	4th Aug.	17th Dec.	12th Feb. 1856	34	1	27	Northern Div...	Europe s. c.
	John McKenna ...	7	20th May	31st do	20th Oct. 1857	33	10	11	Presy. and Centre Divn. ...	Madras.

List of Medical Officers of Her Majesty's Indian Forces—*(Continued.)*

No.	Names.	Professional Titles.	Date of Rank as Asst. Surgeon.	Surgeon.	Depy. Inspector General.	Nominal Service to 31st Mar. 1862. Y.	M.	D.	Corps or Department.	Station.
	Cornelius Clarke Linton...	4-12	9th Mar. 1829	29th Feb. 1844	15th April 1858	33	0	22	Mysore Div. and Malabar and Canara.....	Bangalore.
	*Wm. Gordon Davidson...	††-5	1st April	22nd April	7th May	33	0	0	Southern Divn.	Trichinopoly.
	John Lovell ...	4	30th Aug.	3rd June 1845	11th July 1859	32	7	1	Ceded Districts	Bellary.
10	John Forbes ...	10-4-12	24th do.	28th Feb. 1847	.....	31	7	17	Hyd. Sub. Force	Secunderabad.

Surgeons Major.

					Surgeon Major.					
	*Henry Goodall ...	4	24th Aug. 1830	28th Feb. 1847	13th Jany. 1860	51	7	17	21st Regt. N. I.	Vellore.
	Charles Irving Smith ...	10-4-11	15th May	29th do 1848	do	30	10	16	Actg. Depy. Inspector. Genl. of Hospls. N. Division.. ...	Vizagapatam.
	Colin Paterson ...	7	22nd Oct.	2nd June 1849	do	30	5	9	Garrison Surgn.	Bangalore.
	John Colin Campbell ...	5-4	15th Nov.	9th Aug.	do	31	4	15	Durbar Surgn...	Mysore.
15	*James Dorward ...	.....	12th Feb. 1832	31st do	do	30	1	16	Garrison Surgn.	Trichinopoly.
	John Emelius Mayer ...	4	26th Mar. 1833	28th Feb. 1850	do	29	0	5	Medical Storekeeper & Professor of Chemistry & Atg. Chemical Examiner.....	Presidency.
	James Shaw ...	1	19th May 1834	31st Jany. 1851	do	27	10	12	Supt. Eye Infirmary ...	Madras.
	Robert Henry Rennick ...	4	21st Decr.	13th Feb.	do	27	3	10	31st Regt. N. I.	Waltair.
	*William Mackenzie, C.B...	††-7	14th Jany. 1835	5th do	30th do	27	2	17	Hyd. Contingent	Mominabad.

20	*Thomas Caverhill Jerdon..	4	11th Sept.		29th do		do		26	6	19	Services placed temply. at the displ. of the Govt. of India,	
	Edward Green Balfour ...	5-4	2nd June		31st Dec.		do		25	9	28	Medl. Exmr. of Accounts. ...	Madras.
	James Sanderson ...	5	27th Oct.		15th Mar.	1853	do		25	5	5	Garrison Surgn.	Madras.
	*John Henry Orr, C.B. ...	.....	22nd Feb.	1837	17th July		do		25	0	7	Hyd. Contgt. ...	Hingolie.
	*John Andrew Reynolds...	4	28th do		24th Nov.		do		25	0	0	Garrison Sugn..	Cannanore.
25	William George Prichard..	7-12-5	4th April		15th Decr.		do		24	11	26	.....	Europe s. c.
	*Joseph Myres Jackson ...	4	2nd June		1st Jany.	1854	do		24	9	28	Garrison Surgn.	Bellary.
	*Char. Geo. Edwin Ford...	1-12	29th Aug.		8th do		do		24	7	3	Actg. Staff Surg.	Rangoon.
	*Donald MacFarlane ...	7-9	11th Jany.	1838	14th Feb.		do		24	2	20	Royal Artillery.	Secunderabad.
	Henry William Porteous ..	5	10th Feb.		24th do		do		24	1	18	Surg. 4th Dist...	Madras.
30	John Kennedy ...	7-5	27th Mar.		29th Oct.		do		24	0	4	20th Brig. Royal Artillery ..	Kamptee.
	David Thomas Morton ...	4	7th do		29th do		do		24	0	4	.....	Europe s. c.
	*Wil. Campbell Maclean...	7	29th April		9th Dec.		do		23	11	2	Surgn. 3rd Dist.	Eur. special Fur.
	John Borlase Stevens ...	4-11	29th do		1st Jany.	1855	do		23	11	2	18th Regt. N. I.	Cannanore.
	*Char. William Pickering...	4-11	21st Aug.		21st do		do		23	7	10	3rd M. E. Regt..	Jaulnah.
35	*Henry Edward Hadwen...	4	26th Jany.	1839	16th Mar.		do		23	2	6	35th Regt. N. I.	Bellary.
	James Cecil Burton ...	7-5	14th May		26th July		do		22	10	17	41st Regt. N. I.	Arcot.
	*Charles Timmins ...	1-4-11	1st Sept.		10th Feb.	1856	13th do		22	6	29	.....	Europe s. c.
	Henry Smith ...	4-12	22nd do		12th do		do		22	6	18	3rd Regt. L. C.	Bellary.
	Edward Samuel Tribe ...	4	16th Oct.		30th Mar.		do		22	5	6	.....	Europe s. c.
40	Charles Barclay ...	.....	3rd Decr.		27th April		do		22	3	28	25th Regt. N. I.	Mercara.
	Moses Rogers ...	4-11	3rd do		16th May		do		22	3	28	3d Royal H. Bgde	Bangalore.
	James Lancaster Ranking...	4	6th do		18th Sept.		do		22	2	25	2nd Regt. E.L.I.	Trichinopoly.
	James Peterkin ...	7-4-11	6th do		28th Feb.	1857	do		22	2	25	.....	Europe s. c.
	John Pringle ...	7-5-12	6th do		18th do		do		22	2	25	1st Madras Fus.	Bangalore.
45	*William Johnston ...	7-5-4	6th do		28th Aug.		do		22	2	25	d. d. 17th Bgde. Royal Arty....	St. Thomas' Mt.
	Ambrose Blacklock ...	5	8th Feb.		1st Dec.		8th Feb.		22	1	20	Phy. Gl. Hospl.	Madras.
	*John William Mudge ...	7-5	8th Mar.		25th Feb.	1858	8th Mar.		22	0	23	Surgn. 2d Dist.	Madras.
	*William Wilson Rawes ...	.....	14th April		29th June		14th April		21	11	26	4th Regt. L. C.	Kamptee.
	James Mackintosh ...	.....	22nd Dec.		5th Aug.		22nd Dec.		21	3	10	32nd Regt. N.I.	Secunderabad.
50	John Kinloch Ogilvie ...	7	17th Feb.	1851	10th do	1859	17th Feb.	1861	21	1	11	30th Regt. N. I.	Bellary.

List of Medical Officers of Her Majesty's Indian Forces—*(Continued.)*

No.	Names.	Professional Titles.	Date of Rank as Asst. Surgeon.	Date of Rank as Surgeon.	Nominal Service to 31st Mar. 1862. Y.	M.	D.	Corps or Department.	Station.
	Regimental and Staff Surgeons.								
	John Fitz Patrick ...	7-1-10-12.....	29th Dec. 1840	2nd Jany. 1859	21	3	3	....	Europe Fur.
	William Scott ...	7-5	30th Jany. 1841	9th April	21	2	2	d. d. 24th Regt T. L. I.	Vigianagram.
	*William Hewitt Seton Burn...	4-12	17th Feb.	5th May	21	1	11	34th Regt. L. I....	Madras.
	*Alexander Charles MacLeod...	4	8th Mar.	26th Oct.	21	0	28	.....	Europe s. c.
55	Robert Rushbrook Sutleffe ...	4	8th do	19th Nov.	21	0	28	5th Regt. N. I. ...	Berhampore.
	James Ratton ...	4-11	2nd April	30th do	20	11	28	36th do N.I. ...	Kurnool.
	*William Forrester ...	.....	1st May	30th do	20	11	0	3rd do L. I. ...	Cannanore.
	Henry James Penny ...	1	3rd Oct.	30th do	20	5	28	2nd do L. C....	Secunderabad.
	Charles Murray Duff ...	7-5-12	4th Jany. 1842	2nd Jany. 1860	20	2	27	Acting Surg. 3d Dist...	Madras.
60	Henry Young ...	4	8th do	19th Feb.	20	2	23	6th Regt. N. I. ...	French Rocks.
	Henry Thomas Webster Harper.	4	30th do	1st Mar.	20	2	2	22nd do ...	Bangalore.
	Christopher Beadnell Craske...	4-11	15th Feb.	2nd Sept.	20	1	0	10th do ...	Jubbulpore.
	James Kirkpatrick ...	7-5	30th April	28th Dec.	19	9	1	Surg. to Commission...	Mysore.
	*Henry Carnegie ...	4	19th June	1st Jany. 1861	19	9	11	26th Regt. N. I. ...	Kamptee.
65	Robert Pilkington Linton ...	4-12-11	2nd Aug.	8th Feb.	19	7	29	1st do L. C.	Bangalore.
	Hugh Francis Clarke Cleghorn.	7	10th do	21st do	19	7	20	service placed temply at the disposal of Govt. of India.	Punjaub.
	Matthew Kane ...	7-7-12	20th do	1st Mar.	19	7	11	....	Europe s. c.
	*George Mackay ...	7-10-5-12.....	28th Dec.	1st do	19	3	4	44th Regt. N. I.	Madras.
	Alexander Hunter ...	7-2-12	2nd Feb. 1843	14th April	19	1	26	Supt. of the School of Arts ...	Madras.
70	Hamlin Nott ...	4-10	12th do	28th May	19	1	16	16th Regt. N. I.	Hurryhur.
	Frederick Fletcher ...	5-12	4th April	13th Aug.	18	11	26	27th do ...	Cuddapah.
	James Hay Blackwell ...	5-12	27th Jany. 1844	13th do	18	2	5	12th do ...	Secunderabad.
	Andrew James Scott ...	7-5-12	1st March	18th Nov.	18	1	0	Asst. Assay Master ...	Europe s. c.
	William Wentworth Heude ...	7-5-12	25th do	22nd Feb. 1862	18	0	7	Civil Surgeon ...	Nagpore.
75	John Colebrook ...	4-11	1st April	26th do	18	0	0	....	Europe s. c.

Staff and Regimental Assistant Surgeons.

					No. and Rank in this grade.					
	William Williamson	5		16th April 1844	1st Class	1	17	11	14	Europe s. c.
	George Smith	7-5		3rd Aug.	do		17	7	28	Europe s. c.
	Walter Alexander Leslie	4-11		11th Feb.	do		17	1	17	Medical Officer, Coonoor.
	Frederick Lewis Clementson	4		20th Aug.	do		16	7	11	Europe s. c.
80	John Brett	7-††-11-12		12th Sept.	do		16	6	18	14th Regt. N. I., Bangalore.
	William Aitken.	7-5-12		26th Jany. 1846	do		16	2	5	Supt. Lyg.-in-Hosl., Ag. Asst. Assay Master, Madras.
	*Patrick Gerald FitzGerald.	7-12-3		20th March	do		16	0	11	Sr. Staff Asst. Surg., Palaveram.
	William Judson vanSomeren	7-5-12		7th April	do		15	11	23	Surgeon 1st District, Madras.
	James Boyd Fleming	7-5		17th do	do		15	11	13	Resy. Surgeon, Hyderabad.
85	*Duncan Mackenzie	5		5th May	do	10	15	10	26	Europe s.c.
	*George Bailie	7		19th do	do		15	10	22	19th Regt. N. I., Secunderabad.
	Edward Dixon	5		3rd June	do		15	9	27	29th do, Kamptee.
	James Cowpar	4-12		20th Jany. 1848	do		14	2	11	Civil Asst. Surgeon, Singpaore.
	Arthur Langford Trewman Cooke	4		9th March	do		14	0	22	4th Regt. N. I., Madras.
90	*Lestock Wilson Stewart	4		28th May	do		13	10	4	Medical Officer, Ootacamund.
	John Robert Theobalds	4		20th Dec.	do		13	3	12	9th Regt. N. I., Jaulnah.
	George Flower Trimnell	4-4		27th do	do		13	3	5	1st do, Hoosingabad.
	James Donaldson	7-5		20th Feb. 1849	do		13	1	18	Europe s. c.
	Charles James Rogers	4		29th April	do		12	11	10	Medical Officer, Ootacamund.
95	*Edward John Waring	4-12		22nd June	do	20	12	9	8	Phy. to H. H. the Rajah of Travancore, Trevandrum.
	*George Whittaker Walter	4-12		12th Oct.	do		12	5	19	Asst. Supt. Port Blair, Europe s. c.
	John Liston Paul	7-5-††		20th Jany. 1850	do		12	2	11	Surgn. General Hospl. Madras.
	John George Gibbs	4-12		20th Jany.	do		12	2	11	15th Regt. N. I., Trichinopoly.
	Henry Rowley Donaldson Marrett	4		16th Feb.	do		12	1	12	Zillah Surgeon, Salem. *(Eur. S.C.)*
100	John Wilson	4-11		9th March	do		12	0	12	Civil Assistant Surg., Jubbulpore.
	William Augustus Jacob	7-12-4		20th do	do		12	0	11	Europe s. c.
	John Miller	7-5-12		8th July	do		11	8	23	Europe s. c.
	John Chisholm	7-5		14th Aug.	do		11	7	27	2nd Regt. N. I., Tonghoo.

List of Medical Officers of Her Majesty's Indian Forces—*(Continued.)*

No.	Names.	Professional Titles.	Date of Rank as Asst. Surgeon.	No. in Rank.	Nominal Service to 31st March 1862. Y.	M.	D.	Corps or Department.	Station.
	Henry Robert Oswald ...	7-5-12	24th Aug. 1850	1st Class ...	11	7	8	Commissioner Mysore.	Shemoga.
105	*John Thomas Williams ...	4	20th Dec.	do 30 ...	11	3	11	....	Europe s. c.
	Alexander Adam Renton ...	7-9-5-12	20th Jany. 1851	do ...	11	2	11	....	Europe s. c.
	*John Anderson Cox ...	7-4	10th Feb.	do ...	11	1	18	23rd Regt. N. I. ...	Trichinopoly.
	*James Edward Dickinson ...	4-11	10th Sept.	do ...	10	6	20	Civil Surgeon ...	Rangoon.
	*Colvin Smith ...	7-5	3rd Nov.	do ...	10	4	27	40th Regt. N. I. ...	Singapore.
110	*Edward D'Arcy Evezard ...	4	27th Jany. 1852	do ...	10	2	5	42nd do	Masulipatam.
	*Francis Day ...	4-† † †	26th Feb.	2nd Class. ...	10	1	3	Civil Surgeon ...	Cochin.
	Charles Lee ..	4	11th Sept.	do ...	9	6	19	H. M. S. Ship "Coromandel'	
	*Howard B. Montgomery ...	7-6-†-3-8	20th Oct.	do ...	9	5	10	Gar. Assistant Surg...	Fort St. George.
	Joseph Marcus Joseph ...	7-9-10-4	20th Nov.	do ...	9	4	10	Civil Surgeon .	Tranquebar.
115	Edward Somerset Cleveland....	7-4-11	do	do 40 ...	9	4	10	Civil Surg. Malabar....	Calicut.
	William Henry Harris ...	4-11	13th Feb. 1853	do ...	9	1	0	43rd Regt. N. I. ...	Cuttack.
	*William Henry Rean ...	7-4	14th May	do ...	8	10	27	Civil Surgeon ...	Chicacole.
	Henry Thompson Shaw ...	4	10th Sept.	do ...	8	6	20	Jr. Staff Assist Surg..	Palaveram.
	*Alfred Sanderson ...	7-4	20th Oct.	do ...	8	5	10	1st Regt. Cavy. Hyd. Contingent. ...	Bolarum.
120	Clarence Cooper ...	7-41-2-11.....	20th Nov.	do ...	8	4	10	Arty. & Details. ...	Labuan.
	James McDonald ...	5-12	14th Feb. 1854	do ...	8	1	14	Zillah Surgeon ...	Rajahmundry.
	*Samuel Jardine Wyndowe ...	4-7	24th March	do ...	8	0	7	CivilDutiesin Nagpore	Bhandara.
	William Robert Cornish ...	4-12	1st April	do ...	8	0	0	Secy. Prin. Inspr.Genl. Medical Dept. ...	Madras.
	John Simm Morton ...	7-5	10th June	do ...	7	9	20	B Troop H. A. ...	Jaulnah.
125	Arden Hulme Beaman ...	4	do	do 50 ...	7	9	20	....	Europe s. c.
	Joseph Alfred Bean ..	7-4-11	do	do ...	7	9	20	Actg. Civil Surgeon...	Mangalore.
	John Pearson Nash ...	7-4-12	20th do	do ...	7	9	10	.....	Europe s. c.
	*Henry Critchley Brodrick ...	7-4-11	2nd Sept.	do ...	7	6	28	Residency Surgeon...	Indore.
	George Stewart Watson Ogg ...	8-5-††	12th do	do ...	7	6	18	Zillah Surgeon ...	Coimbatore.

130	John Shortt	...	7-4-12	.....	20th do	do	...	7	6	10	Civil Surgeon	..	Chingleput.
	Donald Coleman McAllum	...	7-5-12	.....	30th Dec.	do	...	7	3	2	Durbar Surgeon	...	Hyderabad.
	William Nathan Chipperfield	..	4-11	.....	3rd Jany. 1855	do	..	7	2	28	Prof. Med. College	...	Madras.
	William Pearl	...	4-11	.....	24th do	do	...	7	2	8	Arty. Horse & Foot	...	Bellary.
	George Marr	...	7-5	.....	do	do	...	7	2	8	Civil Surgeon	...	Moulmein.
135	*William Doyle	...	3-10	.....	do	do	60 ...	7	2	8	Zillah Surgeon	...	Combaconum.
	Edmund Eyre Lloyd	...	4	.....	do	do	...	7	2	8	Civil Surgeon	...	Cocanada.
	*Thomas Lowe	...	4-11-12	.....	do	do	...	7	2	8	Sappers and Miners	...	Dowlaishwarum.
	*Henry Webster	...	4-11-12	.....	do	do	...	7	2	8	Civil Asst. Surgeon	...	Seonee. *(Eur. S.C.,*
	James Augustus Foy	...	4-12	.....	do	do	...	7	2	8	Ganjam and Orissa Sebundies	...	Russelcondah.
140	*Michael Cudmore Furnell	...	4	.....	7th Feb.	do	...	7	1	21	Zillah Surgeon	...	Tellicherry.
	*George Alexander Burn	....	7-5-12	.....	30th May.	do	...	6	10	2	Hyd. Contingent	...	Hingolie.
	Thomas Croudace	..	4-11	.....	4th Aug.	do	...	6	7	27	Civil Surgeon	...	Guntoor.
	Henry Joseph Herschel Griesbach	..	7-4-12-11	.....	do	do	...	6	7	27	d d. 38th Regt. N. I.	...	Secunderabad.
	Benjamin Hooke	...	4	.....	do	do	...	6	7	27	Details and Civil Establishment	...	Tavoy.
145	Robert Dempster	...	4-12	.....	do	do	70 ...	6	7	25	39th Regt. N. I.	...	Trichinopoly.
	John Houston	...	7-5	.....	do	do	...	6	7	25	Asst. Gar. Surgeon	...	Bangalore.
	*Henry Elmsley Busteed	...	4	.....	do	do	...	6	7	27	Civil Surgeon	...	Cuddalore.
	Henry Crocker	...	7-12-4	.....	do	do	...	6	7	27	Acting do	...	Salem.
	Richard Arnold	..	4-11	....	do	do	...	6	7	27	Zillah Surgeon.	...	Chittoor.
150	*Hunter Adam	...	5	.....	do	do	...	6	7	27	Zillah Surgeon	...	Nellore.
	*William Henry Morgan	...	4	.....	do	do	...	6	7	27	17th Regt. N. I.	...	Palamcotta.
	Josiah Dashwood Gillies	...	7-4-12	.....	7th Nov.	do	...	6	4	23	Zillah Surgeon	...	Tinnevelly.
	Dugald Campbell	...	7-5-12	.....	21st do	do	...	6	4	9	F. Troop H. B. Arty.	...	Bangalore.
	Henry King	...	†-8-12	.....	11th Jany. 1856	do	...	6	2	20	Civil Asst. Surg.	...	Baitool.
155	Benjamin Williamson	...	8-5	.....	28th do	do	80 ...	6	2	2	Hyd. Contingen	...	Lingasagoor.
	James Thomas Fraser	...	8-4-11	.....	20th Feby.	do	...	6	1	18	Artillery.	...	Singapore.
	*George Bidie	...	8-4-12	.....	do	do	...	6	1	18	Cattle Farm	...	Hoonsoor.
	John Groscort Reed	...	7-4	.....	do	do	...	6	1	18	Hyd. Contingent	..	Hingolee.
	John Henderson	...	7	.....	do	do	...	6	1	18	33rd Regt. N. I.	...	Bangalore.
160	Hamilton McEilheron Ross	...	7-4-12	.....	do	do	...	6	1	18	Resy. Surgeon	...	Travancore.
	Charles Thick Eves	...	4-11	.....	do	do	...	6	1	18	Hyd. Contingent	...	Aurungabad.
	James Sadlier Ridings	...	4	.....	do	do	...	6	1	18	.....	.....	Europe s. c.
	James Joseph Heffernan	...	6	.....	do	do	...	6	1	18	Civil Surgeon	...	Shuaygheen.

List of Medical Officers of Her Majesty's Indian Forces.—*(Continued.)*

No.	Names.	Professional Titles.	Date of Rank as Asst. Surgeon.	Date of Rank as No. in Rank.	Nominal Service to 31st March 1862. Y.	M.	D.	Corps or Departmnt.	Station.
	David William Trimnell ...	4-11	20th Feby. 1856	2nd Class ...	6	1	18	Civil Surgeon ...	Nursingpoor.
165	Charles Abdy Andrews ...	4	25th April	do 90 ...	5	11	6	Zillah Surgeon ...	Vizagapatam.
	John McNeale Donnelly ...	7	3rd July	do ...	5	8	28	Station ...	Mergui.
	James Keess ...	8-10-4-12.....	4th Aug.	do ...	5	7	27	Dept. of Depy. Inpr. Genl. of Hospitals Pegue division, ...	Rangoon.
	*Robert Wilson ...	7-13-11	do	do ...	5	7	27	Civil Surgeon ...	Madura.
	Robert William Cockerill ...	4-12-11	do	do ...	5	7	27	37th Regt. Grs. ...	Vizianagrum.
170	*Charles Robertson ...	7	do	do ...	5	7	27	Zillah Surgeon ...	Masulipatam.
	*William Charles Elliot ...	7-5	do	do ...	5	7	27	7th Regt. N. I. ...	Kamptee.
	Alexander Gamach ...	7-5	do	do ...	5	7	27	Port Blair. ..	Andamans.
	Jacob Wilkins ..	7-4	do	do ...	5	7	27	28th Regt. N. I. ...	Rangoon.
	*Thomas Gwynne Howell ...	4	12th Nov.	do ...	5	4	18	13th do ...	Trichinopoly.
175	*James Ross ...	8-5	29th Jany. 1857	do 100 ...	5	2	3	....	Europe s. c.
	*Samuel Thomas Heard ...	7-5-12	do	do ...	5	2	3	....	Europe s. c.
	*William Arnold Smith ...	7-4	do	do ...	5	2	3	16th Regt. N. I. ...	Hurryhur.
	*William Frederick deFabeck...	4	do	do ...	5	2	3	Civil Surgeon ...	Kurnool.
	*George Edward Whitton ...	8-6-12-†	do	do ...	5	2	3	C Troop H. Arty ...	Bangalore.
180	*Thomas Beaumont ...	7-6	do	do ...	5	2	3	In Medical charge 3rd Regt. Central India Horse ...	Goonah.
	*William Pierce Kelly ...	6	9th June	do ...	4	9	21	Dept. of Depy. Inspr. Genl. of Hospls. S. Division. ...	Trichinopoly.
	William Richard Grylls ...	7-4-12	4th Aug.	do ...	4	7	27	Dist. of Chindwarrah	Nagpore.
	*James Thomas Joseph Doyle..	3	10th Dec.	do ...	4	3	21	Zillah Surgeon. ...	Cuddapah.
	Henry John Beach ...	4-11	27th Jany. 1858	do ...	4	2	5	District of Chandah....	Nagpore.
185	*John Massey Miller ...	5-7	13th April	do 110 ...	3	11	17	Engineers Dept. ...	Kistna Anicut.
	William Farquhar ...	7-5	28th May	do ...	3	10	4	Artillery ...	Singapore.

	*John Law	...	7-4-11	.....	do		do	...	3	10	4	Dt. of Dy. Ins. Genl. of Hols. Nag. Force.	Nagpore.
	George Hamilton Alexander	...	7-5-12	.....	do		do	...	3	10	4	....	Europe s. c.
	Walter Fry	...	4	....	29th June		do	...	3	9	1	21st Regt. N. I. ...	Vellore.
190	William John Busteed	...	5-12	.....	23rd July		do	...	3	8	9	Dt. of Dy. Ins. Genl. of Hols. Sn. Division.	Trichinopoly.
	William Farquhar Davis	...	7-4-12-11	.....	do		do	...	3	8	9	....	Europe s. c.
	Samuel Rule	...	7-4	.....	do		do	...	3	8	9	Zillah Surgeon ...	Mangalore.
	James McDonald Houston	...	7-4	.....	do		do	...	3	8	9	Medl. Charge Engineer Dept ...	Upper Godavery.
	James Welsh	...	4-12	.....	do		do	...	3	8	9	....	Europe s. c.
195	William Rowland Roberts	...	7-14	.....	do		do	120 ...	3	8	9	Dept. of Depy. Insp. Genl. Nag. Force ...	Kamptee—Under the Govt. N. W. Provinces.
	John Murray	...	7-5-12	.....	do		do	...	3	8	9	....	Europe s. c.
	John Bilderbeck	...	15-4-12	.....	10th Feb.	1859	do	...	3	1	18	Artillery ...	Cannanore.
	Peter William Marriott	...	4-11	.....	do		do	...	3	1	18	....	Europe s. c.
	Robert Edmund Pearse	...	4	.....	do		do	...	3	1	18	....	Europe s. c.
200	George Dalziel Riddell	...	5	.....	do		do	..	3	1	18	d. d. 3rd M. E. Regt....	Jaulnah—Hyderabad Contingent.
	Æneas McLeod Ross	....	5	.....	do		do	...	3	1	18	Zillah Surgn. ...	Honore.
	Joseph Dougall	...	5-12	....	do		do	...	3	1	18	Artillery ...	Vizagapatam.
	Benjamin Thomas Suffrein	...	4-12-11	.....	27th July		do	...	2	8	5	Pegu Division ...	
	Joseph Francis Barter	....	5-12	.....	do		do	...	2	8	5	Under Dy. Insp. Genl.	Nagpore.
205	John FitzGerald	....	6	.....	do		do	130 ...	2	8	5	d. d. Nagpore Force..	Nagpore.
	Andrew Fergusson	....	7-5	.....	do		do	...	2	8	5	d. d. Str. "Dalhousie"	
	Hugh Griffith	...	4-12-11	.....	do		do	...	2	8	5	Dt. of Dy. Insp. Genl. Pegue Division. ..	Rangoon.
	Francis Thomas Bayntun	...	4	.....	26th Oct.		do	...	2	8	5	....	Europe s. c.
	George Williamson	....	7-5	.....	20th Jany.	1860	do	...	2	8	5	1st Intry. Hyd. Cont.	Bolarum.
210	Charles Robert Geo. Parker	...		.....	do		do	...	2	2	12	Madras Fusiliers ...	Bangalore.
	Hugh Ronaldson Handyside	...		.....	do		do	...	.....			d.d. H. M. 105th Regiment L. I. ...	Trichinopoly.
	Daniel Kearney	..		.....	do		do	...	.....			d. d. Artillery ...	Rangoon.
	Francis Orde Bigg Wither	...	4-11	.....	25th do		do	...	.....			d. d. F. Troop H. A....	Bangalore.
214	Frederick Duckworth	...	7	.....	1st Oct.	1861	do	139 ...	.....			d. d. 1st Bn. Arty. ...	Mount.

List of Medical Officers of Her Majesty's British Forces.

No.	Names.	Professional Titles.	Date of Commission.		Service to 31st March 1862.	Corps or Department.	Station.
			Regimental.	Army.			
	Deputy Inspector General of H. M. Hospitals.						
1	George S. Beatson	M.D	.....	31st Dec. 1858	.....	.....	BangaloreHd.Qrs.
	Staff and Regimental Surgeons.						
	Charles Bush Hearn		16th Nov. 1849	.....	.....	1st Royal Regt.	Secunderabad.
	Thomas Best	.....	23rd do 1859	13th April 1852	.....	68th do	Rangoon.
5	Huntly George Gordon†	M.D.	22nd do 1853	.....	.....	69th do	Fort St. George.
	James Macbeth†	M.D.	13th Dec.	12th Aug. 1853	.....	74th Highlanders	Bellary.
	Miah William Murphy	.....	3rd March 1854	.....	.....	91st Regiment	Kamptee.
	William Holmes Jephson	M.D.	12th Jan. 1855	.....	.....	1st Drag. Guards	Bangalore.
10	J. A. Fraser	.....	.....	.....	.....	18th Royal Irish	Secunderabad.
	G. Waterloo Pennington Sparrow	.....	6th July	.....	.....	60th Rifles	Tonghoo,
	James Kellie	M.D.	2nd Oct. 1857	.....	.....	17th Lancers	Secunderabad.
	William Sim Murray	M.B.	24th June 1859	.....	.....	66th Regiment	Cannanore.
	Staff and Regimental Assistant Surgeons						
	Frederick Bone	M.D.	21st Oct. 1853	.....	.....	.....	Not joined.
	David Cullen	M.D.	13th Nov. 1860	1st Sept. 1854	.....	17th Lancers	Secunderabad.
	John Wild Hulseberg	.....	14th Dec.	.....	.....	1st Royal Regiment	do
15	Joseph Watts	.....	.....	5th April 1855	.....	1st Drag. Guards	Depot Surg. Poonamallee.
	Richard Uniacke Cashman	M.D.	9th July. 1857	18th May	.....	Royal Artillery	Secunderabad.
	Samuel Fuller	.....	2nd Oct. 1860	23rd July	.....	17th Lancers	do
	Clement Williams	.....	5th Jany 1855	.....	.....	68th Regiment	Rangoon.
	James Robert Crawford	.....	2nd April	.....	.....	69th do	Fort St. George.
20	William Robert Burkitt	.....	9th do	.....	.....	74th Highlanders	Bellary.
	JamesMacartney	.....	6th Oct.	.....	.....	60th Rifles	Europe s. c.

	Edward L. McSheehy ...	M.D.....	14th do	27th May	.....	1st Dragoon Guards..	Bangalore.
	Arthur Chester ...	.....	13th July 1858	1st Aug. 1857	.....	74th Highlanders ...	Bellary.
	Francis Madden ...	.....	13th do	19th Oct.	.....	69th Regiment ...	Fort St. George.
25	John Henderson Whittaker....	... .	6th do	do	.....	69th do ...	Madras.
	Frederick Ffolliott ...	.....	1st Aug. 1857	.....	.....	18th Royal Irish ...	Secunderabad — absent on duty.
	Augustus Oliver Applin ...	.....	3rd Oct.	.....	.....	68th Regiment ...	Rangoon.
	John Henry Halked Tothill.....	.....	13th June 1859	22nd June 1858	.....	18th Royal Irish ...	Europe c. s.
	Hugh M. Macbeth ...	.....	7th Sept. 1858	22nd do	.....	91st Regiment ...	Kamptee.
30	Robert Gillespie ...	M.D.....	31st Dec.	1st Sept.	.....	74th Highlanders ...	In Medl. charge at Ramandroog.
	Mathew Lawrence White ...	.....	1st June 1859	22nd do	.....	1st Royal Regt. ...	Secunderabad.
	James M'Creevey ...	M.D.....	31st Dec. 1858	.....	.....	66th Regiment ...	Cannanore.
	Alexander C. McTavish ...	.....	.....	12th Jany 1859	.....	60th Rifles ...	Tonghoo.
	C. Codrington ...	.....	28th Oct. 1860	13th June ...	.....	68th Regiment ...	Rangoon.
35	George Alexander Moorhead...	.....	5th Aug. 1859	.....	.....	66th do ...	In Medl. Ch Det. Malliapooram.
	William Orr ...	.....	4th do 1860	.....	.....	18th Royal Irish ..	Secundrabad.
	R. O. Hayden ...	.....	15th Sept. 1859	.....	....	60th Rifles ...	Tonghoo.
	F. W. Wade ...	.....	28th do	.....	.....	do ...	do
	N. Avent ...	.....	9th April 1861	.....	.....	66th Regiment ...	Cannanore.
40	Richard Henry ...	.....	15th Feb.	.....	.....	91st do ...	Kamptee.
41	William Traill ...	M.D.....	19th Jan.	22nd June 1858	.....	91st do ..	do

† Surgeon Majors.

List of Veterinary Officers of Her Majesty's Indian Forces.

No.	Names.	Date of Commissions.	Corps or Stations.	Remarks.
	VETNY. SUGNS., 10.			
1	Ed. Boghurst Dawson...	28 June 1845	1st Light Cavalry	Australia s. c.
	Joshia M. Cullimore ...	7 August 1848	.....	Europe s. c.
	*Thomas Aston ...	4 Dec.	....	
	Rowland Hill Usher-wood Holloway ..	26 do. 1850	2d Light Cavalry	
5	James Thacker ...	29 do.	Horse Artillery....	
	Thomas Pritchard ...	2 Oct.	No. 4. Horse Field Batty.	Mount.
	Daniel Cullimore ...	27 Dec. 1853	.....	Europe s. c.
	Frederick George Shaw.	6 Feb. 1857	Rt. Depôt Oossoor.	
	George Western	25 April.	4th Light Cavalry.	
10	——			

Veterinary Officers of Her Majesty's British Forces.

1	F. Delany	5th Sept. 1844	.....	Not joined
	J. W. Callow ...	14th Dec. 1857	Royal Arty. ...	Secunderabad.
3	John Ferris ...	17th July 1858	17th Lancers ...	do

Native Surgeons.

No.	Names.	Date of Rank.	Stations, &c.
1	C. Bauloo Moodelly ...	16 April 1852	Zillah of Trichinopoly.
	S. Jesudasen Pillay ...	do	Black Town—Madras. Municipal Commissioner.
	S. B. Kanagaroyen ...	20 May 1856	Pullachy Civil Dispensary.
	P. S. Mootoosawmy Moodlr.	do	Zillah of Combaconum.
5	Francis Appavoo ...	4 do 1857	Assistant Conservator of Forests.
	Moodeen Sheriff ...	5 do 1858	Civil Dispensary, Triplicane.
	M. Iyasawmy Pillay ...	do	do Cuddapah.
	I. Raujantheram ...	do	do Cuddalore.
	T. Ruthnum Modelliar ...	do	do Nellore.
10	Y. Anthony Pillay ...	do	do Madura.
11	R. N. Manikum ...	12 do 1859	do Salem.

Sub-Assistant Surgeon.

1	John Alcock, Actg ...	15 Oct. 1861	Pegu Sapper Battalion.

List of Medical Warrant Officers of Her Majesty's Indian Forces.

	Sr. APOTHECARIES.	Apothecary.	
1	Arthur Harris ...	4 Feb. 1831	d. d. Dept. of Depy. Inspr. Genl. of Hospls. Presy.
	George Haldwell ..	2 June 1832	Garrison of Bangalore.
	Samuel Mason ...	27 August 1833	Resident Medical. Officer of the Lunatic Asy.—Has the Hony. Rank of Asst. Surg., with its relative Rank of Lieut.

List of Medical Warrant Officers of H. M.'s Indian Forces—*(Continued.)*

No.	Names.	Date of Rank.	Stations, &c.
		Apothecary.	
	Henry Xavier‡ ...	19 June 1836	Under the Comssr. in Mysore.
5	*P. A.* Mark Sterling‡ ...	7 Feb. 1840	Port and Marine Surgeon's Dept.
	do George Dewsnap‡	15 May 1857	Garrison of Fort St. George.
	Apothecaries.		
	do David Scot Turner ...	2 Sept 1842	Garrison of Vizagapatam.
	do *Gustin Wilson ...	1 Nov.	Secunderabad.
	do Thomas Good ...	6 Feb. 1844	Attached to the Commissioner, Tenasserim Provinces.
10	*do* *George Smith ...	27 May 1845	Garrison of Cannanore.
	do Bartholomew Woutersz	24 Feb. 1848	Under the Commissioner in Mysore.
	do Amond Doutre ...	24 Sept.	General Hospital, Presidency.
	do John Mathews ..	12 June 1849	Under the Coltr. and Magistrate Chingleput.
	do Robert Thompson ...	15 March 1850	Kotagherry.
15	*do* Thomas King ...	24 Dec.	Under the Comssr. in Nagpore.
	do Joseph North ..	25 July 1851	Garrison of Bellary.
	do Henry William King...	1 Nov.	Medical Stores, Presidency.
	do *Peter McIntyre ...	9 May 1854	Dept. of Depy. Inspector General of Hospitals, Malabar & Canara.
	do David Conwell ...	17 Nov.	d. d. Hospital at Trimulgherry, Secunderabad.
20	*do* T. M. Francke ...	21 do	Cantonment of Kamptee.
	do *George Fonsworth ...	22 do	d. d. Civil Dispy. Genl. Hospl.
	do William Barnes ...	22 May 1855	Mysore Commission.
	do Samuel Jones ...	15 June	Penitentiary, Madras.
	do *Robert Huffton ...	28 Nov.	Doing duty Female Asylum.
25	*do* John Alcock ...	15 July 1856	Actg. Sub. Asst. Surg., Pegue Sap. Bat.
	do *John Charlesworth ...	21 Oct.	Civil Establishment, Sircy.
	do George Wrightman ...	17 do	Under the Comssr. Mysore.
	do John Aitkins ...	July 1857	Dept. of Depy. Inspr. Genl. of Hospitals, Ceded Districts.
	do John William Clark ...	27 April 1858	d. d. Civil Dispy., Raneepett.
30	*do* Abel Grove ..	do	Native Infirmary.
	do Frederick Huntley ..	9 July	Garrison of Trichinopoly. Bangalore and W. Coast s. c. till 31st March 1862.
	do George Macqueen ...	.....	Dept. of Depy. Insp. Genl. of
	do Benjamin Henry Bond.	25 Feb. 1859	Hospls. Nagpore Force. d. d. Dept. of Depy. Inspr. Genl. of Hospls. Presy.
	do John Cunningham ...	29 March	d. d. Government House.
35	*do* Joseph Swaris ...	16 Sept.	d. d. Dept. Depy. Inspr. Genl. of Hospls., N. Divn.—doing duty Masulipatan.

P. A. signifies passed examination as Apothecary.

‡ Senior Apothecaries in receipt of higher allowances.

List of Medical Warrant Officers of H. M.'s Indian Forces.—*(Continued.)*

No.	Names.	Date of Rank.	Stations, &.
	APOTHECARIES.		
	P. A. Christopher Oliver ...	12 Oct. 1859	Dept. of Depy. Inspr. Genl of Hos. Hyd. Sub. Force.
	do John Davall ...	14 Feb. 1860	d. d. Dept. Depy. Inspr. Genl. of Hos. Mysore Division.
	do *John Tyrrell ...	27 July	d. d. Dept. of Depy. Inspr. General of Hospitals, Presy.
	do *Archibald Spiers ...	31 August	Do. do. do.
40	*do* J. F. Rodgers ...	19 Dec.	Do. Northern Division.
	do Charles Evers ...	16 April 1861	d. d. Dept. of Depy. Inspr. Genl. of Hospitals, Southern Divn.
	do Richard Quintin ...	do	Dept. of Depy. Inspr. Genl. of Hospitals, Nagpore Force.
	do Thomas B. Turnbull....	23 do	Eye Infirmary.
	Daniel Gillespie† ...	20 do 1859	Dept. of Dy. Ins. Genl. of Hos., Presy.
45	*do* Charles Doig. ...	25 August 1857	H. M. 17th Lancers.
	2ND APOTHECARIES, 33.		
1	*P. A.* George Honor ...	do	H. M. 1st King's Dragoon Guards.
	do *Henry C. Clarke ...	do	d. d. Seamen's Hospital and Civil Dispensary, Cocanada.
	do Frederick Pearl ...	do	69th Regiment of Foot.
	do George Pereira ...	do	d. d. 1st Battalion Artillery.
5	*do* Joseph Miller ...	16 Oct. 1857	3rd Battalion Artillery.
	do *George Norton ...	do	Medical College.
	do Thomas Horrox ...	do	Ganjam Survey.
	*Edmond White ...	do	H. M. 1st Royal Regt. of Foot.
	John Lloyd ...	do	Collector's Establishment, Salem.
10	*do* *James White ...	do	d. d. Arty. at Rangoon.
	William Miles ...	do	H. M. 18th Royal Regt.
	Thomas Leonard ...	do	Ganjam Survey Party.
	do Samuel Newnan ...	do	d. d. General Hospital.
	James Hoyle ...	do	d. d. Civil duties at Negapatam.
15	John Gorman ...	do	Lying-in-Hospital, Madras.
	do William Leach ...	do	68th Regiment of Foot.
	Henry W. Martin ...	do	Doing duty Ramandroog.
	P. S. A. John Martin ...	9 April 1858	H. M. 91st Regt—Madras & Sea, s.c.
	do Wm. K. Kierulf ...	27 do	2nd Battalion Artillery. Secunderabad, Ceded Dicts. and Ramandroog s. c.
20	*do* Henry H. Lynsdale...	do	d. d. Medical Stores, Presidency.
	do Patrick J. Finley ...	9 July	4th Battalion Artillery.
	Michael Kinsley ...	10 August	d. d. Ootacamund.
	do Lazarus Dyce ...	31 Dec.	H. M. 74th (Highlanders) Regt. of Foot.
	Anthony D'Rozario...	4 Jan. 1859	H. M.'s 43rd Regiment.
25	*do* Francis Meneaud ...	25 Feb.	d. d. 1st Madras Fusiliers.
	do James West ...	29 March	H. M. 66th Regiment.

P. A. signifies passed examination as Apothecary.
† Supernumerary.
P. S. A. signifies passed examination as Second Apothecary.

List of Medical Warrant Officers of H. M.'s Indian Forces—*(Continued.)*

No.	Names.	Date of Rank.	Stations, &c.
	2ND APOTHECARIES.		
	*Samuel B. Kemp¶...	16 Oct. 1857	Dept. of Depy. Inspr. Genl. of Hospls. Ceded District.
	Patrick Heron† ...	17 June	60th Regt. Rifles.
	John Edwin Ross†...	12 October	Depot of Poonamallee.
30	*P. S. A.* *George Drake ..	27 Sept. 1861.	2nd European L. I.
	do *James Hargreaves...	13 August	Station Hospital, Malacca.
	do *William Powell ...	29 October	Kimedy.
33			
	ASST. APOTHECARIES, 197		
1	*P. S. A.* Wm. Douglas Master	24 Aug. 1845	Dt. of Dy. Ins. Genl. of Hos. N. Division.
	do *Daniel Henry Gray.	23 April 1846	d. d. H. M. 18th Regt. of Foot.
	do Henry Wale ...	15 June	Presidency.
	do Henry Callaghan ...	30 July	H. M's. 1st Dragoon Guards.
5	*do* *R. F. Stephenson ..	11 August	Dispensary 2nd District.
	do *Francis B. Pereira...	29 Oct.	Mysore Commission.
	do John Middleton ..	11 Nov.	To do duty Collr.'s Est., Bellary.
	do *John Asiaticus Hill Wahab ...	21 Sept. 1847	d. d. Dept. of Depy. Inspr. Genl. of Hospitals, Nagpore Force.
	do T. Humphreys Carr..	19 Dec.	In charge of the Civil Station and Dispy. at Raepore.
10	*do* *Alphonso White ...	2 Feb. 1848	Oossoor.
	do *ThomasRichardPeck	do	Lunatic Asylum.
	do John W. McKenzie...	do	3rd Madras European Regiment.
	do W. T. Chillingsworth.	28 March	Dept. of Depy. Inspr. Genl. of Hospls. Southern Division.
	do James Thomas ...	18 August	Chintadrepettah Dispensary.
15	*do* Abraham Saviel ...	24 Sept.	Doing duty at Tanjore.
	do *John Joseph Wood.	2 Oct.	Asst. to Professor of Botany and Mat. Med. in the Med. College.
	do Henry Hitchock ...	11 do	Cochin.
	do *Robert Donaldson...	26 Dec.	d. d. Pensioners, Cuddalore.
	Samuel Sausman ...	6 March 1849	Mergui.
20	*do* Joseph O'Keeffe ...	3 May	2nd Battalion Artillery.
	do Henry Godbier ...	12 June	Medl. Stores, Presidency.
	James Lears ...	14 Sept.	d. d. Sebundies at Palcondah.
	John Bornshin ...	8 Jany. 1850	H. M. 69th Regt. of Foot.
	GeorgeA. Trutwein ...	15 March	Triplicane Dispensary.
25	John Alexander Beckett ..	26 do	d. d. Cantonment of Arcot.
	*William Lewis ...	17 June	Dept. of Deputy Inspr. Genl. of Hospitals, Nagpore Force.
	*Samuel Hall ...	2 July	Public Cattle Depot, Hoonsoor.
	*Austin Ince ...	29 do	A Troop Horse Artillery.
	*Michael Netscher ...	6 August	Dept. of Depy. Inspr. Genl. of Hospitals, Pegue Division.

¶ Under orders of the Supreme Govt. for employment with European Corps in Bengal.

P. S. A. signifies passed examination as Second Apothecary.

† Supernumeraries.

List of Medical Warrant Officers of H. M.'s Indian Forces –*(Continued.)*

No.	Names.	Date of Rank.	Stations, &c.
	ASST. APOTHECARIES.		
30	*P. A.* *Laurence Carthy ...	9 Sept. 1850	Andaman Islands, with local rank of 2nd Apothecary.
	*David Stewart ...	27 do	Dept. of Depy. Inspr. Genl. of Hospitals, Ceded Districts.
	George Bamford ...	24 Dec.	d. d. Artillery, Moulmein.
	Charles Robertson ...	22 April 1851	Dt. of Dy. Ip. Gl. of Hos., N. Dn.,
	George Nicholls ...	22 May	Garrison of Bellary. [Vellore s.c.
35	*Thomas Quinn ...	25 July	Garrison of Vizagapatam.
	Robert Alexander Leonard ...	14 Nov.	H. M. 68th Regiment of Foot.
	Henry O'Flaherty ...	5 June 1852	Andaman Islands, with local rank of 2nd Apothecary.
	Charles James Daly ...	do	B Troop Horse Artillery.
	Richard Wilkins ...	do	Demonstrator of Anatomy and Curator of the Museum at the Med. College.
40	*Henry Hackett ...	29 do	d. d. Dept. of Depy. Inspr. Genl. of Hospitals, Pegue Division.
	Peter Anderson ...	21 August	Gooty.
	*J. Howard, M. D. & M. R. C. S., [Eng.] ...	27 do	Medical charge of the Zillah of Ganjam.
	*John Sausman ...	do	Dept. of Depy. Inspr. Genl. of Hos. Sn. Division, d. d. at Paumbem.
	*William Thomas ...	1 Oct.	H. M. 91st Regiment of Foot.
45	Charles Smith ...	10 Dec.	3rd Battalion Artillery.
	John Ringrow ...	17 do	Andaman Islands, with local of rank 2nd Apothecary.
	Thomas Joseph Riely ...	do	Doing duty Dept. of Deputy Inspr. Genl. of Hospitals, Hyderabad Subsidiary Force.
	John Wayne ...	31 May 1853	d. d. Dept. of Deputy Ins. Genl. of Hospitals, Mysore Division.
	William Osman ...	7 July	Bangalore, Trichinopoly, and E. Coast s.c.
50	Charles Pettigrew ...	do	Mysore Commission.
	ames Karney ...	do	d. d. N. I. Depot, Palaveram.
	Samuel Wells, M. D. ...	3 May 1854	N. Infy. Depôt, Palaveram.
	Daniel Truth O'Keeffe ...	do	Artillery at Penang.
	*George Frederick Carpenter..	do	47th Regt. N. I.
55	Patrick Kinsley ...	do	Male Asylum, Madras.
	Ambrose D'Rosa ...	do	Civil Hospital, Moulmein.
	George Watson ...	do	Garrison of Bangalore.
	Joseph Hackett ...	do	Pauper Hospital, Singapore.
	Walter Hugh Yarde ...	9 do	Under the orders of the Officer Comg. Pegue Divn. at Menghie.
60	John Walker ...	30 do	H. M. 74th Highlanders.
	Robert Harvey ...	28 April 1855	General Hospital.
	Caleb St. John Lawrence ...	do	Garrison of Cannanore.
	Thomas George Eade ...	do	Province Wellesley.
	John James Henry Everard ...	do	Cantonment of Secunderabad.

P. A. Signifies passed examination as Apothecary.

List of Medical Warrant Officers of H. M.'s Indian Forces—*(Continued.)*

No.	Names.	Date of Rank.	Corps, Stations, &c.
	ASST. APOTHECARIES.		
65	George Christopher Brown ...	28 April 1855	Bangalore and Nilgiris s. c.
	Francis Henry Horatio Smith.	do	Depôt Poonamallee.
	Miles Craggs ...	do	Cantonment of Kamptee.
	Fred. Agtus. Adolphus Vint...	do	No. 7 Horse Field Battery.
	Robert Stewart ...	10 July	Convalescent Depôt, Wellington.
70	Edward Samuel Mayley ...	28 do	Dept. of Depy. Ins. Genl. of Hos. Northern Div. Bangalore and Nelgy. s.c. till 15th June 1862.
	Joseph Victor Duckworth ...	21 May 1856	Dept. of Depy. Inspr. General of Hospitals Hyd. Sub. Force.
	John J. Leonard Wheatley ...	do	13th Regiment N. I.
	Anthony Lawrence Xavier ...	do	Andaman Islands, with local rank of 2nd Apothecary.
	Charles D'Santos ...	do	General Hospital.
75	John Hardaker ...	do	Dept. of Depy. Inspr. General of Hospitals, Northern Division.
	Paul George Paul ...	do	Do. do.
	John Edward Lillywhite ...	do	Garrison of Trichinopoly.
	Thomas Cripps ...	do	19th Regiment Native Infantry.
	John Green ...	5 do 1857	H. M. 1st (Royal) Regt. of Foot.
80	William Karney ...	do	Sappers and Miners.
	Henry Stagges ...	do	Dept. of Depy. Insp. General of Hospitals, Pegue Division.
	Thomas Ward ..	do	17th Regt. N. I. Madras and Cuddapah for 5 months from date of departure.
	George Wilkie ...	do	Dept. of Depy. Inspr. Genl. of Hospitals. Pegue Division.
	Robert Henry Legge ..	do 1856	d. d. Dept. of Dy. Inspr. Genl. of Hospitals H. S. Force.
85	Easton Alfred Morris ...	do 1857	Dept. of Depy. Inspr. General of Hospitals, Ceded Districts.
	Henry Joseph Scott ..	do	4th Battalion Artillery.
	George Shunker ...	do	21st Regiment N. I.
	Samuel Johnston ...	do	Body Guard.
	Leonard Walter Lincoln ...	do	39th Regt. N.I. Madras, Bangalore and Mysore leave 4 months from date of departure.
90	*John Sausman ...	16 do	Garrison of Vellore.
	James Joseph O'Flynn ...	do	25th Regiment N. I.
	Henry Boon ...	do	4th do
	James Albert Falloon ...	do	12th do
	James Walker ...	do	d. d. Details at Kamptee.
95	*William Hamilton ..	3 August	Doing duty Dept. of Depy. Inspr. Genl. of Hos., Pegue Division.
	William Gilbert Wright ...	do	7th Regiment N. I.
	William Joseph Gray ...	do	2nd Regiment L. C.
	Edmond O. Claudius Vint ...	do	Dept. of Depy. Inspr. Genl. of Hospitals, Ceded Districts.
	James McFarland ...	do	48th Regiment N. I.
100	*John Robert Carey ...	do	Doing duty Tambacherry Pass.

List of Medical Warrant Officers of H. M.'s Indian Forces—*(Continued.)*

No.	Names.	Date of Rank.	Corps, Stations, &c.
	ASST. APOTHECARIES.		
	John Arthur Evers ...	3 August 1857	Doing duty Leper Hospital.
	Thomas Everard ...	do	Eur. Infy. Camp, Vizagapatam.
	*Thomas Gabriel Devine ...	do	Malabar and Canara.
	Richard James Ramsbottom...	do	Dept. of Depy. Inspr. Genl. of Hospitals, Mysore Division.
105	James Hugh McClosky ...	do	Colonial Apothecary, Labuan.
	George Watson ...	do	Doing duty 2nd European L. I.
	William Watson ...	do	H. M. 66th Regt. of Foot, Detachment at Malliapooram.
	John Felix James Borgonha...	do	Station Hospital, Singapore.
	Edward James Heiden ...	do	d. d. Dept. of Depy. Inspr. Genl. of Hospitals, Northern Divn.
110	James George Ashworth ...	do	Furlough Presidency.
	Thomas Tudor Van Hams ...	do	33rd Regiment N.I.
	James Ringrow ...	25 do	Dept. of Dy. Inspr. Genl. of Hos. Malabar and Canara, under Civil Surg. Calicut.
	John Isacke ...	do	1st Battalion Artillery.
	Daniel Callaghan ...	1 October	23rd Regiment N. I.
115	John Norman ...	do	Dept. of Dy. Ins. Genl. of Hos. Pegue Divn.
	Edwin Atkinson ...	do	H. M. 17th Lancers.
	Alfred Wright ...	do	C Troop Horse Artillery.
	James John Watts ...	do	Dt. of Dy Ins. Genl. of Hos. Northern Divn.
	Benjamin Lewis Xavier ...	do	31st Regiment N. I.
120	Thomas Kelly Hall ...	do	Dept. of Depy. Inspr. Genl. of Hospitals, Pegue Division.
	Charles Thipthorp ...	do	d. d. with working parties at Dumugudium.
	Nicholas D'Rozario ...	do	Madras s. c.
	Thomas V. S. Aitkins ...	do	D. Troop Horse Artillery.
	David Marian ...	10 Nov.	d. d. Dept. of Depy. Inspr. Genl. of Hospls. Presidency.
125	Francis Brown ...	19 Jany. 1858	d. d. R. Arty. Secunderabad Trichinopoly & Dindigal s.c. til June 1, 1862.
	Alexander Trutwein ...	1 June	27th Regiment N. I.
	Christian Thomas Browne ...	24 August	2nd do
	George Marrow ...	do	Dept. of Depy. Inspr. Genl. of Hospitals, Pegue Division.
	Thomas Edwin Judge ...	do	F Troop Horse Artillery.
130	James Wood ...	do	d. d. Dept. of Depy. Insp. Genl. of Hos. Nagpore Force.
	*Charles William Baker ...	do	16th Regt. N. I.
	Christian Michael Antonio ...	do	Furlough Presidency.
	*George Bayley ...	do	31st Regt. L. I.
	Richard Alexander Bowie ...	do	Dept. of Depy. Inspr. Genl. of Hospitals, Presidency.
135	Reuben John Anderson ...	do	3rd Regiment L. I.
	Richard Wells ...	do	Doing duty 20th Regt. N. I.

List of Medical Warrant Officers of H. M.'s Indian Forces.—*(Continued.)*

No.	Names.	Date of Rank.	Stations, &c.
	ASST. APOTHECARIES.		
	James Theodore Gilles ...	24 August 1858	10th Regiment N.I.
	Michael Wade ...	do	Eur. Arty. Vet. Co., Palaveram.
	*George William Phillips ...	do	Dept. of Depy. Inspr. Genl. of Hospitals. Hyd. Sub. Force, d. d. Batteries Royal Artillery.
140	Jonas Isaac Laffrey ...	do	Madras s. c.
	George Edwin King ...	do	43rd Regiment N. I.
	William Day Stewart ...	9 Nov.	d. d. on board Str. "Coromandel."
	Edwin Gustavus Scott ...	24 Dec.	29th Regiment N. I.
	Francis D'Sylva ..	1 Feb. 1859	Detachment N. I. Labuan.
145	Jonathn Chadwick ...	do	41st Regiment N. I.
	Thomas Baracliffe ..	20 April 1860	Collector's Dept. Vizagapatam.
	Theophilus Todd ...	5 May	3rd Regiment L. I.
	James Delany Jones ...	do	11th do N. I.
	Joseph Johnson ...	do	28th do
150	John Edwin Xavier ...	do	46th do L. I.
	Edmund Trutwein ...	do	35th do N. I.
	Charles Trutwein ...	do	44th do
	Charles Jordon ...	do	24th do N. I.
	Stephen Chalke ...	do	52nd do
155	Alfred James Butterfield ...	do	26th do N. I.
	John McDiarmid ...	do	32nd do
	James Anderson ...	do	9th do
	George John Duckworth ...	do	18th do
	George Albert Watts ...	do	6th do
160	Richard Hamilton ...	do	Dept. of Depy. Inspr. General of Hospitals, Hyd. Sub. Force.
	William Johnston ...	do	45th Regiment N. I.
	Henry Wells ...	do	Pegue Police Battalion.
	David Arklie ...	29 June	1st Regiment N. I.
	Thos. Mergler ...	3 August	22nd do
165	Edward Gillson ...	5 May	4th do L. C.
	J. Trutwein ...	7 do 1861	d. d. H. M. Steamer "Dalhousie."
	Daniel O'Leary ...	do	30th Regiment N. I.
	John Bazely ...	do	14th do
	Albert B. Court ...	do	Right Wing H. M.'s 3rd Bat. 60th Rifles.
170	W. A. Harrison ...	do	38th Regiment N. I.
	C. D. Rose ...	do	37th Grenadiers.
	W. H. Eade ...	4 June	d. d. 1st Regiment L. C.
	J. P. R. Thoy ...	28 do	d. d. 49th do N. I.
	F. W. S. Newland ...	16 July	d. d. 5th do
175	J. McDermott ...	26 do	d. d. 8th do
	S. Steinhoff ...	13 August	d. d. 5th Battalion Artillery.
	S. E. Carrapeitt ...	do	d. d. Presidency.
	F. Green ...	15 do	d. d. 1st Battalion Artillery.
	C. A. Leary ...	26 do	d. d. Depôt Poonamallee.
180	C.R. Meneaud ...	1 September	d. d. 1st Madras Fusiliers.
	C. S. Aitkins ...	27 do	d. d. 36th Regiment N. I.
183	W. P. Oliver ...	29 October	d. d. General Hospital.
	H. Hawkes ...	1 November	d. d. Nat. Infy. Depôt Palaveram.

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